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REMARKS ON SOME ABDOMINAL PROBLEMS, BASED ON CLINICAL EXPERIENCE.[1]

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IN speaking to the subject "Some Abdominal Problems", I desire to base my remarks not on text books or current literature, but on personal clinical experience over a period of nearly thirty years.

Appendicitis.

First, it will be granted that the most common surgical condition of importance which we are called upon to treat is appendicitis, and that the problems in connexion with this disease are many and varied. Half a century has not elapsed since pathological conditions of the appendix came to be recognized as the cause of many serious abdominal conditions, and with the recognition of the cause and the application of progressive surgical knowledge to its treatment, the death roll of peritonitis has been very considerably reduced.

In my early associations with appendicitis as resident medical officer, the cases fell mainly into two types, the recurrent colic, and appendical abscess. The early recognition and removal of the acute fulminating type as correct procedure was then in its infancy, and it was from the results obtained by the different operating surgeons that my earliest lessons were learned. The first question one has to decide is whether abdominal pain referred to the right iliac region is due to appendicitis and whether the conditions are such as to justify surgical interference.

I would divide the conditions into: (*a*) those which are not acute, and (*b*) those which appear to be acute and may become urgent. Among the former we have cases of recurrent colic due perhaps to an obstructive condition, the result of peritoneal folds, the anatomical condition of the mesentery, adhesions,

[1] Read at a meeting of the Victorian Branch of the British Medical Association, on October 3, 1931.

fæcal accumulations, foreign bodies, oxyurides *et cetera*. In these conditions there may be several attacks of pain perhaps some day to be followed by an acute condition. Bearing in mind the possibility of ureteral colic, ovarian pain, caecal stasis, and even gall stones, and having satisfied oneself of absence of definite evidence of these, I think one is justified in operating for removal of the appendix where there have been recurrent attacks of pain directed to the appendical region and even after one attack with pronounced symptoms. One reason for hesitation in operation is that an abdomen should not be opened with impunity, and fairly often after an operation for simple appendicitis one finds omental adhesion to the wound with perhaps dragging on the transverse colon. Two points to emphasize in these cases are: (i) Accurate suturing of the peritoneum with a readily absorbable suture, and (ii) seeing that in ligaturing of the mesentery, traction does not kink the ileo-caecal junction; this may often be avoided by interfering as little as possible with the ileo-caecal fold. The decision as to which incision, the McBurney or the Battle incision, should be used, will depend on various factors: the desire to investigate the conditions of other organs, the adiposity or otherwise of the abdominal wall, age, and occupation of the patient. If Battle's incision is used the nerves going into the rectus should if possible be preserved and the deep epigastric vessels avoided. *A propos* of colic cases, I wish especially to mention those due to oxyurides, and these can frequently be diagnosed beforehand. I have seen a patient apparently in intense pain; and on removal of the appendix it was found full of oxyurides. In doubtful cases the stools should always be examined for worms; this applies to adults as well as children. As an example of foreign bodies in the appendix mention would be made of one case in which operation was advised only after much hesitation, but on removal of the appendix a tooth-brush bristle was found in its canal; complete relief followed operation.

I have not stressed the appendix with a chronic infection and perhaps resultant "indigestion", ill-health *et cetera*. In these circumstances, in addition to attacks of pain there is usually tenderness in the region of McBurney's point, and operation is then more imperative, for one may find an appendix full of purulent material although the patient has a normal temperature and pulse rate.

X ray diagnosis may be helpful, but is not advocated; in many cases it must still be indefinite and the average country patient has not the time nor the cash to devote to the investigation, even if the practitioner has an X ray apparatus and has the time.

Now, to speak of cases which are acute and may become urgent. The causes of acute appendicitis were found to be mainly two, obstruction and inflammation. The former were much more common, and though perhaps due to causes previously mentioned, that is, anatomical arrangement of the mesentery with kinks, peritoneal adhesions, foreign bodies *et cetera*, they are much more frequently due to fæcal concretions or stricture, the result of a former pathological condition. These cases are usually severe in their onset, the patient doubles up with the pain, which may ease after a while; but if going on to secondary complications the onset is usually followed by vomiting in the first three or four hours. The pain may be epigastric or situated in the right iliac fossa, or in a child, referred to the umbilical region. The sudden onset of pain, often awaking the patient at night, followed by vomiting in a few hours, I consider of primary diagnostic importance. Even when subsequent examination reveals little or no tenderness or rigidity in the appendiceal region, a temperature perhaps not above 37·2° to 37·5° C. (99° to 99·6° F.) and a normal pulse, yet the type of onset is of such importance that the patient should be placed under close observation as regards temperature, pulse and tenderness in the appendiceal region.

When looking for rigidity or tenderness in a case of suspected appendicitis, palpation should not be commenced in the appendiceal region. Begin in the left iliac and work around the abdomen to right iliac region, and always finish with a rectal examination, so important when the appendix is in the pelvis. A case which at first presents very little local indications may in a very few hours become urgent, the result of obstruction causing inflammation going on to gangrene or perforation and peritonitis. Failure to make strict observations of this kind is in my opinion the cause of so many patients finally reaching the operation table in a serious condition. These cases are most frequently the result of obstruction from the causes mentioned.

Inflammatory appendicitis is more insidious in its onset, and the diagnosis is usually easier. One type requires especial mention; it is the type associated with a diarrhœa or loose motions at the onset. For this reason the condition may be overlooked, the diagnosis may be more questionable, the risk of operation greater, but the organisms are virulent, pathological changes occur rapidly and the operation is urgent.

An initial rigor, or a rigor a few hours after the onset, may occur and has to be remembered. With the diagnosis of acute appendicitis the time for operation is "as soon as possible", day or night, for a closed abdomen is much to be preferred to one with a drainage tube.

With the patient on the table, the first question is where the incision is to be made. Here the selection is mainly limited to two: shall it be the McBurney incision or that of Battle? The former has anatomical advantages frequently outweighed by the operative advantages of the other. When the patient is almost under the anæsthetic, palpate the abdomen for the area of greatest rigidity, this will frequently guide one to the seat of the appendix, and the incision should be made accordingly. When the appendix is retrocaecal or along its outer wall, McBurney's incision is preferable; but if the Battle incision is used and drainage is necessary, close the rectus wound and drain through a stab. In making the right rectus incision, if one expects to drain, then the incision should go through the rectus (and the rectus should not be retracted) because with the pressure of the drain tube *plus* infection the

aponeurosis sloughs and hernia is more likely to occur.

Should the appendix always be removed? In cases of well defined abscess, no. In all other cases, preferably yes. But the appendix is not always easily found, it has no fixed position. The most difficult to locate are appendices under the caecum and ascending colon; the appendix may be closed over with peritoneum or be closely adherent to the wall of the bowel. In one case an appendix had apparently been removed and then another 5·0 centimetres (two inches) of appendix was found indistinguishable from bowel wall. Only one guide is certain, it is the anterior longitudinal bundle, and when the appendix is not readily located, the bundle should be followed down to the base of the appendix, and the operation is frequently more profitably continued from here. Sometimes it is easier to cuff back the last inch or so, and the appendix canal may even be dissected out of its muscular and peritoneal envelope.

Having found and removed the appendix, the questions arise: "Shall I drain the peritoneal cavity? If so, where and what with?" Varied opinions exist as to the advisability of drainage, but I confess that, when in doubt, I use drainage. In one type of inflammatory appendicitis I do not use drainage. It is when the appendix is covered over with lymph and practically no free fluid is present. Also, when the appendix is found embedded in omentum I think the abdomen can be safely closed. But, when the appendix is found in a sloughing or gangrenous condition probably with a perforation, and when free fluid is found in the abdomen, then drainage is essential. In these cases the procedure followed is to suck out the free fluid with some form of suction apparatus, remove the appendix with as little trauma as possible, avoid disturbing the small intestine and, if the omentum be readily available, draw it down to the operation area; by these means the area to be drained can be limited. Having decided on drainage, where shall the drain be placed? If the appendix is retrocaecal or lying on the outer side of the caecum, drain through the McBurney incision or through a stab wound. If infection is towards the pelvis, put a drain into the pelvis and usually a small one to the caecal area also.

Should the drainage medium be a rubber tube? With or without gauze? Or gauze? I have given up using gauze packs, but where free fluid (not pus) is present I always use a cigarette drain loosely (not tightly) fitting in the tube; the gauze must be fine mesh. Gauze will not drain pus, but gauze will drain thin fluid by capillary action and a tube without gauze will not drain fluid above high water mark.

In the presence of localized pus one needs only a drainage tube. Rubber tubing is unsatisfactory for drainage, but I do not know any better. When draining the pelvis, place the drain as close as possible to the pelvic wall, and if available, draw the omentum down to protect the small intestine. How to avoid intestinal obstruction due to adhesion along the tube track has been one of my most worrying problems. In many cases obstruction is threatened, in others it actually occurs, and that is why I hold that a drain should not be put into the pelvis unless infection has definitely spread there. After seven to ten days the patient, perhaps still slightly feverish, with some abdominal distension, begins to complain of abdominal pains; the temperature falls to normal or subnormal, the pulse is slow. Is obstruction developing? One may wait long enough to try the action of purgatives, even though calomel and castor oil are two potent drugs to establish the diagnosis, and if symptoms are persisting, especially if vomiting ensues, the abdomen should be opened by a mid-line or right rectus incision. The kinked coil is usually a coil of ileum not very far from the ileo-caecal junction; this may be freed and the abdomen closed, generally with satisfactory results. Further trouble may occur; if so, it must be dealt with.

How these cases can be avoided altogether I cannot say; a rubber drain is an irritant, but I know no better. To decide whether obstruction is occurring, sit down alongside the patient and watch for intestinal movements; if you are not satisfied, give a cold drink, this will frequently make peristalsis visible; the higher the obstruction, the more value in the test.

It is difficult at times to say whether the abdominal pain is due to a pathological appendix or to a partly descended hernia; or one may find an inflamed appendix in the inguinal canal and associated with strangulation (both seen). One may also find an obstructed or strangulated hernia, femoral or inguinal, and at the same time an acute appendicitis associated with it.

Another condition met with on two occasions recently is best illustrated by reference to the condition found. A clinical history strongly suggested appendicitis, but operation revealed an appendix practically normal in appearance, a swollen thickened condition of the ileum near the ileo-caecal valve and perhaps extending into the wall of the caecum, and enlarged lymph glands in the ileo-caecal mesentery; microscopical examination of the glands revealed a condition of hyperplasia, not tuberculous.

The conditions met with causing difficulty in diagnosis from appendicitis were: ureteral colic, gall stones, acute cholecystitis, intestinal obstruction, perforated duodenal ulcer, perforation of intestine by foreign body, rotation of omentum, ectopic gestation and acute salpingitis. Most of these cases present other diagnostic factors. Two clinical methods so frequently relied upon may lead us aright or may lead us astray. In the cases mentioned the temperature is elevated little or not at all, unless in acute salpingitis, acute cholecystitis or possibly a leaking duodenal ulcer. In all cases the temperature should be taken in the mouth and in the rectum. In the country, where patients are forced to travel some distance, usually by motor car, it is common, one might say almost a rule, for the temperature taken in the mouth to be down to normal or subnormal, even with an acute condition, whilst the rectal temperature may be anything from 37·2° to 39·4° C. (99° to 103° F.) or more; the greater the difference, the more I regard the condition as urgent. All cases of appendicitis in which there is a difference of 1·5° to 2° F. between the oral and the rectal temperature should be regarded as urgent. Two

things are necessary, a record of the rectal temperature and a rectal digital examination. The pulse may be very misleading in that the normal pulse rate is not known; a pulse rate of 80 in one patient will correspond with a pulse rate of 100 or over in another, and an hourly pulse rate as well as rectal temperature record is a good guide. The pulse rate may be very little increased whilst the inflammation is confined to the appendix; but when extension to the peritoneal cavity occurs, the pulse rate begins to climb.

How to pull through the neglected patient with diffuse peritonitis after operation? The high Fowler position should be adopted, the patient should be propped upright and the foot of the bed raised; saline solution with 5% glucose should be given continuously by the intravenous route by the drip method; continuous or intermittent rectal injections of saline solution should be given; and the intestine should be rested by withholding food and possibly giving morphine and avoiding purgatives for the first two or three days.

Rupture of the Bowel.

Next to speak of abdominal injuries. First we may have penetrating wounds. These should be investigated, and if suspicion exists that the abdominal wall has been penetrated, the abdomen should be opened to see that no viscus has been punctured with resulting hæmorrhage or a leaking bowel. When the injury has been severe, as in a kick from a horse, it is wiser to do a laparotomy, and to see whether any viscus has suffered damage. But it is when the injury has been less severe that one may be inclined to treat the case lightly, only to find later on that the patient has a rapidly spreading peritonitis.

As example the following two cases of rupture of the small intestine, the result of a blow on the abdomen sustained in a football match are of interest.

The patient B.M. was eighteen years of age in 1916. I was called out five miles at 5 p.m. to see him; he stated at 5.30 p.m. that whilst playing he had received a blow on the abdomen from a player's knee when going for a "mark", but the opinion formed was that more probably the player had fallen on him with his knee. He was seen again at 7 p.m. on a return journey and was removed to the hospital; after consultation, operation was performed at 10 p.m. Incisions were made above and below the umbilicus. The jejunum in its upper part was found to have been torn across for about two-thirds of its circumference, and food, orange pips *et cetera* were floating about the peritoneal cavity. After repair and cleansing the abdomen a drain was placed in the pelvis and the upper wound was closed. Stay in hospital was prolonged over two months owing to the wounds, when apparently healed, breaking down and refusing to heal. Twelve months later he was admitted with an abscess in the left ilio-inguinal region. Ten years later he was treated for a fractured clavicle—football again.

The second patient, G.O'B., was eighteen years of age in 1927. He received a knock on the abdomen from a knee whilst going for a "mark" during a football match. He came down with acute pain and was carried off. He returned to the field, but had to go off. He was seen two hours later. He was complaining of acute abdominal pain mostly to the left below the umbilicus with some rigidity. During the next three hours the pain and rigidity increased. The temperature rose to 38·3° C. (101° F.) in the rectum and the pulse rate increased slowly. At operation a right paramedian incision was made. He collapsed under the anæsthetic and was brought round with difficulty. Whilst we were waiting for his recovery the appendix was removed full of fæcal matter. Then on drawing over the small intestine a small perforation was found near the convex border, partly plugged by mucous membrane; gas and fluid were escaping. This was closed by a transverve and supporting sutures. A small drain was placed into the pelvis, the temperature fell in the course of a few days, and the patient left hospital under one month.

In each of these cases the opinion formed was that rupture occurred as the result of a bursting force consequent on a sudden pressure applied to a full tube, the intestine. One can see the analogy when a cart runs over a full hose, the bursting may take the form of a transverse tear as in the first of these cases, or a bubble form of rupture as in the second; pressure against the rigid spine is probably a factor.

Injury to the Kidney.

The other form of injury of which it is desired to speak is injury of the kidney, indicated by hæmaturia of varying degree, and local tenderness and rigidity, also varying in intensity. I want particularly to ask for conservative treatment in these cases. The first difficulty to be overcome is to decide whether intraperitoneal hæmorrhage has occurred. I have had a fair number of patients under personal observation, as many as five on one occasion, but have never seen one with intraperitoneal hæmorrhage. In the absence of this one should refrain from operating in the earlier stages at least; it is rarely that the hæmaturia is so persistent as to require surgical interference and usually clears up in a few days. This may be assisted by cold applications, restricted diet, calcium chloride and ergot, and small doses of hexamine for antiseptic reasons. Should one feel called upon to operate, then conservatism is again required, and the kidney should be removed only when extensively damaged, and when one is certain of the presence of a second healthy kidney. A wound in the kidney may be sutured, and if there are multiple tears through the capsule a drain to the area for a few days may be all that is required. I have seen the lower pole of the kidney detached and, on my suggestion, removed, leaving the remainder of the kidney, and the patient make a good recovery; now I would suggest suture. One should be prepared to risk a pyelo-nephritis rather than sacrifice a kidney, and a rise in temperature sustained for a few days does not necessarily indicate acute infection of the kidney. I have not had to remove a kidney on account of hæmaturia the result of injury.

Problems Associated with Pregnancy.

Pregnancy may be complicated by the presence of ovarian cysts or by myomata of the uterus, and the question arises, should these be removed or left alone? Or if to be removed, when? In regard to ovarian cysts, where early antenatal examination is insisted upon, the cysts should be discovered in the early months of pregnancy and be removed then, for the risk of abortion is not great following operation carefully performed; but if they are not discovered till after the sixth month, they are generally better left alone and the patient kept under observation. If the cyst is of such a size as to be causing too great pressure, it may have to be removed, but this is better delayed till about the eighth month to secure a viable child in the event of premature labour; seven months is too early. Brief histories are given of two cases as examples.

Mrs. W.H., aged twenty-five, was seen when about two and a half months with the first pregnancy; the tumour was up to the umbilicus. Diagnosis was a pregnant uterus and right and left ovarian cysts. At operation two pints of fluid were drawn off a right parovarian cyst, which was then removed. The cyst contained small cysts in the wall and thickened tissue. The right ovary was left. A cyst the size of a mandarin orange was then enucleated from the left ovary. The appendix with a concretion was removed. In the later weeks of pregnancy, albuminuria, œdema and a rise in blood pressure occurred. At confinement the baby was born before the arrival of the doctor. Two and a half years later the patient is well and no further pregnancy has occurred.

Mrs. C.F., aged thirty-one, was treated for retroversion of the uterus with left pelvic pain, relieved by reposition. An Alexander-Adams operation was performed; pregnancy followed and later a normal confinement. When she was again two months pregnant an enlarged tender left ovary was felt. Later a breech was converted to a left occipito-anterior presentation and confinement was normal. Twenty-one months later, when five months pregnant, she consulted me on account of a gush of water ten days previously, which had relieved discomfort from which she had been suffering. A left ovarian cyst was found behind the pregnant uterus. At operation the uterus was found locked in the pelvis and was lifted out. A left ovarian cyst was then lifted and removed leaving a fragment of ovary. The appendix could not be located. An attack of appendicitis occurred a month later, but subsided. Slight *post partum* hæmorrhage followed confinement. Following another attack of appendicitis thirteen months later a long retrocaecal adherent appendix was removed. The right ovary was normal.

Myomata with pregnancy are more common, are frequently seen, and only occasionally call for surgical intervention prior to full term. A large pedunculated myoma discovered early in pregnancy is better removed, but subperitoneal and intramural myomata may generally speaking be left till term or confinement. The myomata appear to enlarge during the progress of the pregnancy, are often only discovered in the later months, diminish in size following confinement, and in some cases years afterwards cannot be located. A myoma low down may be in the pelvis in the early months, but becomes drawn up with the ascending uterus, or may be lifted above the pelvic brim at term, enabling labour to proceed normally. When a large myomatous pregnant uterus comes to term, it is essential to see that the head is descending into the pelvis, when labour may be left to natural termination. If the head is not entering or a tumour is occupying the pelvis and cannot be displaced upwards, Cæsarean section must be performed, and in the majority of cases is preferably combined with hysterectomy, which is really easier than subtotal hysterectomy in many non-pregnant uteri.

The two conditions I have had most trouble from, when left to Nature, were malpresentations and adherent placenta, and one may be glad when the menopause occurs or hysterectomy has been performed. Two cases are cited as illustrative.

Mrs. W.H., aged thirty-six in 1919, had been subjected to curettage of the uterus for miscarriage when two and a half months pregnant. She was first seen by me six months later, early in her pregnancy. Two tumours could be felt and it could not be decided which was myoma and which was the uterus. The myoma rose well with the uterus; at confinement a posterior occiput was rotated to the anterior position, and delivery was easy, but the placenta had to be manually removed on account of firm adhesion at the site of the myoma. Two or three other small myomata could also be felt near the right cornu. The uterus involuted well and the myoma was well defined. Two years later a second child was born, the occiput being in the anterior position and the placenta had again to be removed. Uterine inertia occurred with some *post partum* hæmorrhage and later some puerperal pyrexia caused anxiety. Eighteen months later a dead fœtus was removed and a very adherent placenta curetted out. Menstruation ceased fifteen months later; the myomata were then small shrunken nodules. The patient is now well and the proud mother of two fine children.

Mrs. A.M., aged thirty-four in 1928, was first seen when five and a half months pregnant, with a myoma low down in front on the right side. A month later three or four myomata could be felt in the upper half of the uterus and one or two below. At seven and a half months the fœtal head could not be located or heart sounds heard. At eight months the fœtal head was coming into the pelvis and the presentation was diagnosed as occipito-posterior. At confinement the presentation could not be altered and delivery with forceps was difficult. The child died next day. The uterus involuted to just below the umbilicus and six weeks later four or five myomata could still be felt. Pregnancy soon occurred again and it was proposed to perform Cæsarean section and hysterectomy at term, but prior to that the fœtus was found to be lying in the left occipito-anterior position. One month later the patient came in with "solid albumin" and was delivered of a ten pound baby by the low forceps operation; placenta and membranes had to be manually removed. Two months later the fundus was just below the umbilicus and only a trace of albumin could be found in the urine. Further pregnancy was forbidden and hysterectomy advised, but the patient has not been seen for two years.

In 1917, following consultation with a leading gynæcologist, I performed hysterectomy on a patient four months pregnant with myomata. I always regretted it, as after the operation I was of opinion that the myomata would probably not have interfered with delivery; a rather sad domestic tragedy occurred later.

In one case I was able at two successive confinements to push a myoma above the pelvic brim and allow the head to descend; later this patient was confined by a practitioner in another town.

Should myomectomy or hysterectomy be performed subsequent to confinement? Experience of cases under observation has been that neither has been necessary, but of the two I would prefer hysterectomy on account of the dangers attendant on future confinements with an abnormal uterus and the probable presence of submucous tumours.

Malignant changes in myomata associated with a pregnant or puerperal uterus I have never seen, and so have not considered them. Degenerative changes must be looked for and dealt with if they occur; the risk of these is one argument for Cæsarean hysterectomy at term.

THE PUBLIC HEALTH RESPONSIBILITIES OF THE GENERAL PRACTITIONER.[1]

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WHEN I was asked the title of this paper, I gave it as it appears in the notice of this meeting, but perhaps a better title would have been "The Public Health Opportunities of the General Practitioner", for that is the aspect of the matter on which I wish to lay stress. Ever since I became a full time health officer, it has seemed to me that the medical profession is gradually abandoning one of its most important social functions, namely, that of leaders

[1] Read at a meeting of the Victorian Branch of the British Medical Association on October 3, 1931.

of the nation in matters relating to public health, and is letting it fall into hands which are not so well equipped for the purpose, and I wish to indicate one or two ways in which this tendency may be arrested.

It is not, I think, generally realized to what an extent the general practitioner is directly concerned with public health, and what a large proportion of practitioners are actually employed as health officers. There are in Victoria some 1,400 medical practitioners. I suppose that about 1,200 of these are in general practice. In the State there are some 250 health officers. Of these 250, 14 are full time officials (State or municipal) and the remaining 236 are general practitioners who are part time officials employed by municipalities. That is, one out of every five general practitioners is a health officer. In country districts the proportion is even greater. In the western health area, out of 76 medical practitioners, 67 are general practitioners, and of these 30 hold positions as medical officers of health—nearly half. Probably in this respect the western district differs but little from other districts outside the metropolitan area.

One would imagine, then, that with such a large proportion of practitioners acting as municipal officers, the profession would exercise a tremendous influence on the municipal health administration of the country. It is a fundamental principle in all British health legislation that the local authority is the public authority primarily responsible for the health of the people. This principle was laid down in the great English *Consolidating Health Act* of 1875, which has served as a model for the bulk of the health legislation of the self-governing dominions. Once this principle is recognized, it must be realized how important is the position of the Medical Officer of Health, and how great are his responsibilities, his powers and his opportunities.

One finds, however, that in the main this potentially influential body of practitioners does not play anything like the part which it could play. Within certain defined limits the municipal medical officers of health carry out their duties admirably; in fact, they do far more than the man in the street, or even their professional brethren, realize, and certainly far more than the Councils which employ them, give them credit for. From my own experience I could quote many instances where the prompt and efficient action of the medical officer of health has aborted epidemics. There have been many such in the last few years. Such action, besides saving life and health, also results in saving the municipality considerable expense in the maintenance of patients with infectious disease. Painstaking search after carriers, often involving, on the part of the general practitioner medical officer of health, long journeys into the country, careful examination of contacts, all have played their part in limiting the spread of such diseases as diphtheria, scarlet fever and typhoid in this district. Quite a long time ago a Schick testing campaign was inaugurated within a few miles of Camperdown, by a general practitioner medical officer of health. I feel sure that no one in this room realizes better than I do what the community owes to its part time medical officers of health, and I doubt whether any part of the State is better served in this respect than the western district. But, as a rule—there are exceptions, of course—beyond dealing with the acute infectious diseases, the part time medical officer of health does not go.

Now I for one do not think that it is the doctor's job to concern himself with too many sanitary details or attempt to be his own sanitary inspector. But I think that the part time medical officer of health could well take a broader view of some of his duties. If I mention the words "regulations" and "reports", I fear that I am in danger of causing some of you to say to yourselves: "There speaks the civil servant." And yet, what are regulations and reports but the instruments by means of which the medical officer of health operates. He has others, it is true—professional knowledge and prestige, knowledge of human nature, tact, sympathy and understanding beyond the average, all these are important components of his armamentarium—but in so far as he is an official, he must use the tools of officialdom.

As regards regulations, he should at least have a nodding acquaintance with those that concern him. I would not for one moment suggest that the busy practitioner, oppressed with the cares of a general practice, finding it hard even to get time to glance at his journals, should sit down and try to cram up the *Health Act* and all the regulations made under it. But he should at least know which parts concern him and obtain from the municipal clerk copies to be kept at hand for reference when occasion arises. And if he remembers that he is one of a team consisting of the municipal clerk, the engineer, the council's solicitor, the health inspector and himself, and works with the other members of this team, he will receive from them assistance in respect of the technicalities relating to the legal and the engineering sides of his office.

A very dear and lovable old practitioner, a part time medical officer of health, once protested to me: "It's an extraordinary thing, but the moment an ordinary reasonable sort of chap gets into one of these official positions he gets all tied up with red tape." This was when I had refused to aid and abet him in going beyond his legal powers. His motives were excellent, the action he suggested highly commendable from the health point of view, only it happened to be beyond the scope of our powers as health officers. Usually the boot is on the other foot, and the medical officer of health does not use half the power which Parliament has conferred on him, for the reason that he does not know that they are his.

So much for regulations, now for the other bogy, reports. The medical officer of health has the following duties imposed on him by Parliament:

(*a*) To keep himself at all times properly informed as to the public health and sanitary cir-

cumstances of the municipal district and to report to the council on any matter or thing relating thereto which in his opinion should receive its consideration.

(*b*) To furnish monthly reports to the council and an annual report, and such special reports as the council requires.

(*c*) To furnish special reports direct to the commission when required to do so by that body.

All these reports provide a wonderful opportunity, or series of opportunities, for influencing public opinion; for while, as a rule, the reports of subordinate government officers are not made public, the medical officer of health's reports go to his council, and if they contain anything of interest, are usually given publicity by the local Press. The older generation of part time medical officers of health made good use of their reports. It was largely by means of detailed and interesting reports that they secured improvements in the sanitation of their towns, and these reports were often considered worth printing and distributing by local authorities. If today each medical officer of health were to look around his town or shire and study in what direction there was scope for improvement, and then hammer away at his council in his reports, I venture to say that in a few years the result would be very great.

It may be objected that as far as the country medical officer of health is concerned, there is often very little for him to write about. I admit that as regards small shires this is often the case, but those medical officers of health who do take the wider view, show in their reports a surprising variety of topics. There is still great scope for improvement in our rural sanitation, the standard of which is often deplorably low. The conditions under which our rural meat supplies are killed are often far from satisfactory, though greatly improved of recent years, and could be further improved by the extension of meat areas to their furthest practicable limits. The dangers of hydatid disease, and the means of prevention, could well be stressed in the western and similar districts. The situation with regard to vaccination is most unsatisfactory; it is a subject on which I think we, as a profession, should have a corporate opinion. There are many other subjects on which the public welcomes information: the prevention of infectious diseases, sane information on diet and personal hygiene, the need for antenatal supervision, infant welfare, the suppression of quackery *et cetera*. How many towns are there with proper laboratory facilities or facilities for the storage of sera? Or how many hospitals have suitable accommodation for tuberculous patients, or for those with complicated measles and whooping cough? The list is capable of indefinite expansion. As a matter or fact, most of the subjects I have quoted have been dealt with in the reports of medical officers of health. There has been a good deal written of late on the duty of the profession to educate the public. I trust that I have shown that this statutory duty of reporting confers on at least one-fifth of the general practitioners of this State a great opportunity of undertaking the health education of the public without any question of self-seeking or indirect advertisement being raised.

The objection may be raised, and with some justice, that this would mean a lot of extra work for the part time medical officer of health, and that, as a rule, he is very poorly paid for his duties as it is. This is quite true, but the fault often lies with the medical officer of health himself. There are still far too many who receive only £10 or £15 *per annum*. One reason for this is that when these positions are advertised, no matter how small the salary, there is competition to secure the appointment. If men compete for these appointments, they should be prepared to carry out their statutory duties, however low the salary is. There is a salary scale, laid down by the Association, and approved by the Commission, of £50 *per annum* for populations of 5,000 and under, rising by £10 for every 1,000 population over 5,000. Of the thirty general practitioners who are part time medical officers of health in this district, only fourteen receive the standard salary. It is no part of the Commission's duty to look after the profession's interests, and municipal councils are only doing the right thing by their ratepayers if they secure professional services at the lowest possible rate, but it is the duty of the Association and every member of it to see that the profession is not exploited by taking underpaid appointments.

And the reason why many of these appointments are underpaid is that many medical officers of health deprive themselves of the credit that is rightly theirs by not accounting properly to the public authority that employs them. Blank reports are sent in month after month, and councillors naturally think that the medical officer of health has done nothing for his salary, and one cannot blame them for saying, when it is suggested that they should pay the standard scale: "What does the doctor do for this salary? We never hear of our man doing anything."

Another result of this neglect on the part of the medical officer of health to use his opportunities is that he is losing his rightful place as the expert adviser of his council on matters relating to public health. Councils are turning more and more to their health inspectors for advice. Now the inspector is the subordinate of the medical officer of health. This is partly due to the improvement in status of the health inspector. The old "inspector of nuisances", like the old untrained midwife, is gradually disappearing. His place is being taken by men who have had to qualify by examination for their appointments and who, in knowledge of the Act and regulations, are often better equipped than the doctor. But, as a rule, I have found that the better trained the inspector, the readier he is to defer to, and take orders from, the medical officer of health, provided that the latter knows and takes an interest in his work; and the same thing applies to municipal clerks. The health officer who calls

regularly at the municipal office and keeps in touch with his brother officers, will find that his opinion is invited on matters which concern his department, whereas, if he holds aloof, he has only himself to blame if he is ignored. Among the matters on which his opinion should be invited, are proposed revisions of regulations, for, before any health regulations are made or revised, copies are sent out to all municipal councils for their opinion.

So far I have been speaking only of the general practitioner who is also an official, but the thousand or so practitioners who are not officials, also have their statutory responsibilities with regard to public health. Chief among these, of course, is that of notification of infectious diseases. Generally speaking, one may say that the notification of the acute diseases, diphtheria, scarlet fever, typhoid fever and poliomyelitis, is faithfully carried out, although in some towns the custom has grown up of leaving notification to the authorities of the hospital to which the patient is sent for isolation. But in respect of tuberculosis, the situation is not so satisfactory. There are various reasons for this, into which it is not necessary to enter here, but I would urge that if notification is to be of any use at all, it should be as early as possible. Notification of hydatid disease is even more unsatisfactory. Presumably this disease was made notifiable so as to secure accurate data as to its distribution and prevalence, and this object is being defeated by the neglect of practitioners to notify.

Next to notification is the equally important duty of informing the head of the household, when a case of infectious disease occurs, as to what action should be taken to prevent the spread of the disease. This constitutes a definite legal obligation to educate. Sometimes this obligation is overlooked, the attending practitioner, especially if the patient is sent into the isolation hospital, leaving the matter to the medical officer of health or his deputy, the inspector. This is undesirable on two grounds: first, in the country it may result in much unnecessary travelling on the part of the medical officer of health; secondly, it is an example of that tendency to hand over to an official part of one's duty as a practitioner. Now it is a truism that the official can never satisfactorily replace the family doctor, but this tendency should be arrested by the latter taking his right place as adviser on matters of prevention as well as of cure; if this is done generally, the efforts of health authorities to limit infectious disease will be much more successful.

There are many other ways in which the general practitioner can cooperate with health officers and with the various official and semi-official bodies concerned with the promotion of health and the prevention of disease, such as the school medical service, the infant welfare centres *et cetera*, but time does not permit to go into details. I will conclude by saying that I trust that I have not appeared unduly critical. If I have seemed to dwell on the shortcomings of the part time health officer, I am very much aware that I must also plead guilty (with much less excuse) to the same faults of omission; and where my criticism has been constructive, it is because I have drawn on the experience of the many efficient part time medical officers of health in the western district.

SOME ASPECTS OF OBSTETRICAL RADIOGRAPHY.[1]

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WHILE this paper mostly exemplifies the work of the X ray Department of the Women's Hospital in this city, it indicates certain aspects of obstetrical radiography to which, for various reasons, more attention has been paid abroad than in Australia. My feeling is that the number of patients examined by X rays in private practice is much smaller than this procedure, as an ante-natal investigation would justify. It is only rarely that we are asked in private practice to examine patients with X rays by practitioners other than those of the honorary staffs of the obstetric and gynæcological departments of the public hospitals. I feel that this is due to the fact that the value of X ray examination in obstetrics is not appreciated by the general practitioner, rather than that the method itself is of little value.

To Müllerheim, of Leipzig, in 1899, is said to belong the distinction of first showing part of the *fœtus in utero*, but it was not until 1913 that the complete skeleton was demonst ated by Schwab and Weil. There are certain very definite technical difficulties to be overcome in demonstration of the intrauterine fœtus. Amongst them may be mentioned the thick uterine walls, the amniotic fluid, the poor calcium content of the fœtal skeleton, the distance of the fœtus from the film and the possibility of fœtal or maternal movement. Thus it was not until the advent of the interrupterless transformer, the high capacity Coolidge tube and the Potter-Bucky diaphragm, that radiologists could sponsor this method of investigation with any confidence. This branch of radiography is therefore only a little more than ten years old and in recording its advances a tribute must be paid to the excellent volume of Dorland and Hubeny,[(1)] published in 1926.

In passing it may be mentioned that only thirty-five years have passed since Wilhelm Röntgen discovered X rays in his physical laboratory at the University of Wurzburg in Bavaria. Extraordinarily sinister qualities were immediately credited to the rays, and the belief that evilly-disposed persons could carry X rays about with them and betray in broad daylight the secrets underlying *lingerie* gave grave concern

[1] Read at a combined meeting of the Section of Obstetrics and Gynæcology and the Section of Radiology of the Victorian Branch of the British Medical Association, on July 30, 1931.

to the sterner minded members of the civilized communities. In February, 1896, Congressman Read introduced a bill into the New Jersey Legislature, prohibiting the use of X ray opera glasses, and this bill provided for substantial penalties for those who, all unsuspected by the ladies of the chorus, would penetrate the thin veils of theatrical modesty. An echo of such feelings was heard on the other side of the Atlantic when a London firm preyed on a gullible public by advertising "X ray-proof underclothing". But it was not long before the fond hopes of the Don Juans of 1896 were cruelly dashed to the ground and they, like many good men after them, were brought to realize the limitations of X rays.

Action of Radiation on Pregnancy.

Before proceeding to describe the methods used in the X ray diagnosis of pregnancy, perhaps it would be wise to interpolate a few remarks on the action of radiations on pregnancy. I find that in certain remote quarters there still persists the fear that the X ray examination of the pregnant woman is a procedure fraught with danger both to the mother and to the fœtus. It is essential to differentiate X ray diagnosis from X ray treatment in considering the action of radiations on the pregnant mother.

In America and in Europe but very much less, I should think, in Australia, radiation treatment, that is by X rays or radium, is used to treat certain conditions in women during the child-bearing age. The most common of the conditions are menorrhagia, dysmenorrhœa and uterine fibroids. Discussion of the relative values of surgical and/or radiation therapy often appears in the American and Continental gynæcological literature and the effect of radiation on the child-bearing and pregnant woman is naturally given prominence by the critics of radiation treatment. It is the non-recognition of the fundamental differences between radiation therapy and obstetrical radiography that has tended to perpetuate the bogy that taking an X ray film of the pregnant abdomen is dangerous.

On this subject the following statements may be confidently made:

(1) So far there is no evidence to prove that diagnostic radiography during pregnancy is harmful.

(2) Pelvic radiation treatment prior to conception is harmless as far as the health and development of subsequent children are concerned.

(3) Radiation therapy of a growing embryo *in utero*, if large intensities of exposure are employed, is likely to result in the birth of a defective child. The chief defects noted up to date are microcephaly and microphthalmia.

It may also be said, though perhaps it is unnecessary in this country, that irradiation as a means of producing temporary sterilization or abortion does not appear to be dependable. Intensities of radiation therapy, not harmful to the mother, may injure the fœtus, but are not likely to produce abortion, though the earlier in pregnancy the X rays are applied the more likely is abortion to occur. I think the foregoing summarizes the most authoritative opinions on this subject.

Methods of X Ray Diagnosis.

The methods used in the X ray diagnosis of pregnancy up to the present are:

(1) The usual method which relies on the demonstration of the fœtal skeleton by "straight" or unaided radiography: this, of course, is the routine method.

(2) Pneumoperitoneal radiography.

(3) Intrauterine injection of lipiodol in the early stages of pregnancy.

(4) The method reported by Albano in 1928 of intravenous injection of substances opaque to radium which are excreted in the *liquor amnii*.

The last three methods are all designed to demonstrate pregnancy at an earlier date than can be expected with unaided radiography.

With regard to pneumoperitoneum, which consists in the intraperitoneal injection of gas in order to give radiographic contrast for the easier demonstration of the abdominal and pelvic organs, Peterson, in 1912, claimed that, by this procedure, the fœtal skeleton in the enlarged uterus could be shown between the eighth and tenth week. But pneumoperitoneum is often attended by cardiac and diaphragmatic embarrassment; death, too, has been reported, and so the method has been discredited. It has fallen quite out of favour as a radiographic procedure and scant reference is now made to it in any of the literature.

While pregnancy is demonstrated directly only by showing the fœtal skeleton, an attempt has been made to demonstrate conception indirectly at a much earlier stage by the injection of a contrast material into that potential cavity of the uterus which exists up to the end of the third month, that is, before the *decidua vera* and the *decidua reflexa* have fused. The contrast shadow at this time will show a "filling defect" corresponding to the projection into the cavity of the developing ovum, just in the same way as a fungating carcinoma of the stomach will cause a filling defect in the barium-filled stomach.

Carlos Heuser, of Buenos Ayres, was the first to utilize this procedure and the contrast material he employed was lipiodol, which, as you all know, is a chemical combination of 42% iodine in poppy seed oil. Its bland, non-irritating qualities, with its dense shadow, are most valuable radiographically. Heuser recounted his work first in 1925 at the International Congress of Radiology in London and then made the extraordinary claim, of special interest to obstetricians, that in none of his cases had the procedure been followed by abortion or injury to the fœtus. This statement was naturally received with scepticism by medical practitioners as it contravened the time-hallowed dogma of the inevitable catastrophe of injecting a foreign body into the gravid uterus. The use of this procedure by other gynæcologists and radiologists was not attended with the same fortunate sequelæ, with the result that it appears to be very sparingly employed.

In 1928 Heuser, while aware of the attitude of his critics, continued to advocate hysterography in early pregnancy, though he then naïvely admitted that if the sound is introduced too deeply, or the injection is made with force, abortion is produced. But this, he claims, is the fault of the technique, and not of the procedure. The resulting X ray appearances will be a marked increase in the size of the uterine cavity, due to atony, and the cavity will hold 35 cubic centimetres, whereas in the normal non-pregnant uterus, one-tenth of this amount will suffice. The triangular outline of the uterus is lost and becomes oval or ovoid. The site of attachment of the ovum is shown by a "filling defect". The distribution of the oil around this "filling defect" has a web-like arrangement which is said to differentiate it from a submucous fibroid. The X ray differential diagnosis includes submucous fibroid and fungating carcinoma of the body: in all three the uterus is enlarged, with a "filling defect".

Lipiodol has also been used in the diagnosis of extrauterine pregnancy. It is suggested that extrauterine pregnancy can be excluded if both tubes are patent to the lipiodol; that atony of the uterus without a "filling defect", due to intrauterine implantation of the ovum, constitutes indirect evidence of ectopic gestation; and that the occluded and pregnant tube may show typical forms of "filling defects". You will appreciate that the foregoing is all very indirect evidence, with definite sources of error.

We have made only one attempt at this procedure at the Women's Hospital.

An enlarged uterus with a "filling defect" was demonstrated in a young married woman who had missed one period, but unfortunately the patient left the hospital without coming under further observation.

Another attempt to diagnose pregnancy radiographically during the early months was reported by Albano in 1928. He injected intravenously, opaque substances which he said were excreted in sufficient concentration in the *liquor amnii* to cast well-defined shadows typical of early pregnancy. He used Graham's dye, sodium tetraiodophenolphthalein and strontium bromide. If Albano's article was abstracted accurately (I take the abstract from *The British Medical Journal* "Epitome of Current Literature") he claimed to have discovered early pregnancy in the first or second month in twelve cases by this method. We have not heard anything further from M. Albano; I am afraid we must take at present what he says "*cum grano salis*". Albano's method is entirely distinct from the later development of direct injection into the *liquor amnii* of opaque solutions. Of this method of "amniography", mention will be made later.

Unaided radiography which calls for the direct demonstration of the fœtal skeleton, requires the use of certain positions, the patient of course lying on the Potter-Bucky diaphragm. In endeavouring to demonstrate the fœtal skeleton before mid-term at the Women's Hospital, we usually use an eleven by fourteen inch film, stereoscopic preferably, with the patient in the supine position, and the tube inclined into the pelvis at an angle of 18°. The patient's iliac crests are on a level with the top of the cassette and the central ray is directed towards the centre of the film. This position is designed to throw the fœtal skeleton clear of the confusing sacral and coccygeal shadows. At this period of gestation it is desirable that the bladder and bowel are emptied before exposure, and it is unnecessary to state that one should not be satisfied with anything but the best quality films, with a maximum of contrast and detail, a three kilowatt Müller tube with forty milliampères being used in our department.

In the fifth and sixth month the patient is still made to lie supine over a large fourteen by seventeen inch film, the untilted tube being centred about one inch below the iliac crests. After this time the patient lies prone, with her chest and hips supported by pillows. After mid-term, right or left lateral fourteen by seventeen inch films are usually exposed as well.

In all exposures the patient is tightly immobilized in order to prevent fœtal or maternal movement, and complete cessation of respiration during exposure is aimed at by making the patient hold her nose, with the mouth tightly shut.

Earliest Date of X Ray Diagnosis of Pregnancy.

The earliest date at which a diagnosis of pregnancy can be made by unaided radiography demands some attention.

Though fœtal ossification commences at the seventh week and the principal ossification centres are usually present towards the end of the third month, demonstration of the skeleton is often delayed beyond this, owing, amongst other factors, to the low calcium content of the fœtal bones.

In 1927 Jungmann stated that X ray visualization of the fœtus was possible from the eighth to the ninth week of pregnancy by employing the best X ray technique. He therefore claims that X ray visualization is the first definite evidence of pregnancy, being available long before the other definite signs. Jungmann's statements have been freely quoted, but I am inclined to think that they are unduly optimistic. Sometimes the skeleton is seen during the third month, but only rarely. If seen at that time only the circular shadow of the skull, generally the occipital bone, or the "bead-string" shaped vertebral shadow will be demonstrated. Care must be taken in the X ray differential diagnosis at these early dates, because fæcal contents and the normal bony markings of the sacrum may obscure the fœtal bones, just as they may simulate them.

It is generally admitted that fœtal structures are visualized with certainty only after the eighteenth week. A normal finding is therefore of limited value before eighteen weeks. After mid-term, with satisfactory technique, an absolute opinion as to whether pregnancy is present or not can be given. In other words, the fœtus may sometimes be seen in the third month, more often in the fourth month, and practically always, with satisfactory technique, late in the fifth month and after.

Such direct evidence, of course, must have an important medico-legal aspect. As Dorland and

Hubeny have stated, it may be employed for dissipating scandalous reports regarding single women and widows, and for disproving actions for divorce.

Those of you who, like myself, are admirers of the most brilliant of the modern school of "literary" biographers will remember the account that Lytton Strachey gives in his "Queen Victoria" of the tragic affair of Lady Flora Hastings.

Court rumour doubted that a change in Lady Flora's figure was pathological, and the young Queen's physician, Sir James Clark, indiscreetly helped to set the tongues still further wagging. The Hastings family was socially powerful, and demanded Sir James's dismissal; but to this the young Queen (it was the year 1839) would not consent, and the tide of opinion turned violently against the Queen and her advisers. It was intensified when some months later Lady Flora died of her abdominal malignant disease, and this incident was probably one of the most important factors in bringing about the unpopularity that developed around Victoria in the earlier half of her reign.

If only a Potter-Bucky diaphragm and a Coolidge tube had been available at this time the whole tenor of the Victorian age might have been profoundly altered.

Its use in proposed surgical operations upon the uterus scarcely needs mention. In *The Lancet* of October 23, 1923, is reported *l'affaire d'Evreux*, a *cause celèbre* which attracted considerable attention in France and Belgium.

A certain surgeon, Dr. Vallet by name, was sued by the relatives of a lady on whom he had operated on the assumption she was suffering from a fibroid. The operation ended in a Cæsarean section and the death of the patient. The legal action ended in favour of the plaintiffs, and in passing judgement on the surgeon, who had set out to remove a fibroid uterus, but who found a viable fœtus instead, the legal authorities appeared to have been largely influenced by the surgeon's omission to employ X rays as a diagnosis before operation. This French court ruled that, from the fifth month onward, it is increasingly easy to demonstrate the presence of a fœtus by X rays.

That, of course, was in 1923; technique has advanced since then.

The part played by radiography in differentiating pregnancy from uterine fibroids, ovarian cysts, pseudocyesis, hydatidiform mole, obesity, ascites and the menopause, must always have the reservation that a negative finding before mid-term does not exclude pregnancy. The calcification that occurs in fibroids may possibly, in the early months, be mistaken for portion of the fœtal skeleton, but not, of course, after mid-term. It is interesting that the soft tissue shadow of the pregnant uterus casts a less dense shadow than the soft tissue shadow of a fibroid uterus. In cases of pregnancy occurring in a fibromyomatous uterus, the relative position of the embryo and the tumour may sometimes be determined. The soft tissue shadow of an ovarian cyst is generally placed slightly asymmetrically to the mid-line and the presence of teeth or bony fragments may sometimes be visualized. Dr. Arthur Sherwin will remember a recent private case in which these two points enabled the diagnosis of ovarian cyst to be made.

Age of the Fœtus.

In spite of the excellent work of Hess, on the dates of appearance of the intrauterine ossifications, I feel that we are not in a position to diagnose the exact age of the fœtus from the X ray films. Too many of the finer details of the osseous structures are lost or blurred owing to distance from the film, movement and other factors. The size on the film of the fœtal head and other bones is an unreliable guide on which to base age, as, owing to radiographic projection and magnification, the recorded size varies with whether the part is lying anteriorly or posteriorly or whether the patient is lying on the face or on the back.

The age can be estimated to within a month or so, but not, I think, within a question of weeks. But there is one epiphyseal appearance which is generally large enough to be demonstrated and which is of importance in dating the fœtus as having reached the ninth month, and that is the centre of ossification for the epiphysis at the lower end of the femur. The determination of the maturity of the fœtus prior to Cæsarean section is sometimes of importance. The history of amenorrhœa is frequently unreliable, and even when this is considered in relation to the height of the fundus by clinical examination, I understand that mistakes may be made. With the X ray ante-natal demonstration of the lower femoral epiphysis we have certain information. The lower femoral epiphysis does not appear till the twenty-eighth week and then only in a small percentage of cases; usually it is delayed until after the thirty-second, that is, in the ninth month. It cannot therefore be taken as positive evidence of maturity, though its presence can be accepted as practically a certain indication of viability.

The upper tibial epiphysis is a better test of maturity than the lower femoral. In a small percentage of cases it is present during the ninth month, but in five cases out of six, its presence indicates that the child has passed the ninth fœtal month. The lack of this centre does not necessarily indicate prematurity, as it is absent in nearly a fourth of full-term children at birth.

I feel sure that Dr. Arthur Wilson will permit me to relate a case of his in which such radiographic information was of practical interest.

A young unmarried lady had hardly stepped off an "Orient" ship before she was obliged to book a room in a maternity home in this city. This disturbing news was cabled home to her *fiancé*, who lived in an ancient university town in North Britain. He replied denying the impeachment, and made the counter suggestion, a very cruel one, I thought, that the Greek god Eros had been "up to his tricks" in the soft tropical moonlight on the voyage out. However, our films showed the appearance of the lower femoral epiphysis, establishing a pregnancy of at least eight months' duration. The X ray evidence was flashed across the wires and we learned that it helped to convince the *fiancé* that the seductive tropical moonlight was not responsible for this little accident, and that if he persisted in his scepticism he would join the ranks of repudiationists, a title no Scotsman would entertain.

Some of my friends consider that the important conclusions drawn in this case were based on rather inadequate evidence; but after all, the only insecure link in the chain is the assumption that eight or nine months previously love's young dream had seen to it that the young people concerned were never out of one another's sight. Personally, I prefer to follow the precept of ancient Roman law, that in doubtful matters the merciful view is always to be preferred.

Fœtal Position.

The use of the radiogram in checking up deflexion attitudes and suspected transverse, breech and oblique presentations and for verifying occipito-posterior presentations might be mentioned. In breech presentations it is useful in differentiating "breech" from "breech with extended legs" and from the incomplete varieties of knee or footling. The Rotunda people call attention to the fact that prolapse of a hand may be seen and corrected before fixation of the head. We have not yet seen such a case at the Women's Hospital.

Serial skiagrams will demonstrate the successful accomplishment of prophylactic version done to correct breech, oblique and transverse presentations. They also show the spontaneous versions that occur at the end of gestation. It is therefore necessary for the radiologist, when he has the result of only one examination before him, to report: "X ray examination reveals such and such a position at the time of examination."

Stein and Arens report a rather remarkable case of spontaneous version demonstrated radiographically as a right occipito-anterior presentation, three days after rupture of the membranes and in the first stage of labour. It then turned to a breech presentation.

This spontaneous podalic version in a *primipara*, three days after the onset of labour, would be hard to believe without the X ray evidence. The change of polarity must have been due to fœtal movements, for gravity certainly played no part, as the patient was quiet in bed during the time and adaptation would favour the original relationship.

Multiple Pregnancy.

I would stress the need for the use of large films and particularly the lateral views in the X ray demonstration of multiple pregnancy, especially when the fœtuses are small. A special film directed into the pelvis may be necessary, as a small fœtal skeleton may be obscured by the lumbo-sacral vertebræ. The usual complication of varying degrees of hydramnios with multiple pregnancy will tend still further to obscure small fœtal shadows. When a pregnancy is at full term, unless a sufficiently large film is used, the presence of twins may not be demonstrated. The same applies to a single transverse presentation lying at the fundus. Dr. R. F. O'Sullivan relates such an error.

We have made an X ray examination in one case of Siamese twins at the Women's Hospital during the past four years, but I did not make a pre-natal diagnosis. There are obvious sources of error radiographically in making such a diagnosis, and a radiologist would require considerable courage to do this.

We have not yet demonstrated triplets. In searching the literature I can find record of only seven cases of triplets diagnosed by X rays.

Amniography.

We have been content in the past with the demonstration of the fœtal bones and the uterine contour, but recently a method has been described which promises to go somewhat further. Very exceptionally, when the subcutaneous fat is unusually thick, the soft tissues of an extremity may cast a shadow owing to the slight difference in density between the fœtal subcutaneous fat and the *liquor amnii*. To Menees, Miller and Holly,[2] three American investigators, this suggested producing an artificial increase in the density of the amniotic fluid, to give contrast to the fœtal soft parts and placenta. This contrast is obtained by the direct injection into the amniotic cavity of about ten cubic centimetres of a 50% solution of strontium iodide through the anterior abdominal wall, and half an hour later the films are made. No ill-effects to mother or fœtus were noted in twenty-one cases. The films show the location of the placenta in the majority of cases. The placenta appears as a "filling defect", best seen when caught in profile. The cord may occasionally be shown and the sex revealed by the outline of the genitalia. It is only very rarely that a truly lateral view of the fœtal breech makes the sex evident.

Ectopic Gestation.

A word might be said about the X ray diagnosis of ectopic gestation. The pneumoperitoneum exponents claimed that they could diagnose early tubal gestation from the enlarged tube with the enlarged uterus; and some observers have claimed that they can diagnose tubal pregnancy by characteristic appearances with lipiodol hysterosalpingography.

If the ectopic gestation has gone on to mid-term or beyond, it is said that it can sometimes be suspected radiographically by the fact that the fœtal shadow may be startlingly distinct, as if resting just beneath the abdominal wall; the usual fœtal ellipse may be disturbed and the fœtus assume a sprawled-out appearance. It is common to find the fœtus lying transversely and the soft tissue shadow of an enlarged uterus corresponding to three to four months may sometimes be recognized, not incorporating the fœtus. We have a film of a full-time abdominal pregnancy in which the mother was delivered by Cæsarean section of a live child, but the diagnosis was not made radiographically.

Lithopædion.

We have yet to demonstrate a lithopædion, or "stone child". Lithopædion is calcification in the fœtal tissues or in the enveloping membranes in a dead abdominal fœtus, sometimes in a dead tubal fœtus, rarely, if ever, in the uterus. It should cast a very characteristic shadow if of any considerable size. Irregular calcification in tiny fœtuses would be impossible to differentiate radiographically from calcification in an intraligamentous or subperitoneal fibroid. Up to date only three characteristic lithopædia have been demonstrated radiographically, the first being reported by Lichtenstein in 1906.

Intrauterine Fœtal Death.

In 1922 Spalding,[3] of the Stanford University, California, described what he considered a pathognomonic sign of fœtal death, namely, overlapping of the fœtal skull bones with a decreased radius of curvature of the head. Though the skull bones overlap, they remain practically the same shape and

size. While this sign has been demonstrated as early as the fourth day, it usually takes ten to fourteen days to develop, and it is due to the *post mortem* shrinking of the brain tissue.

Dr. Green will remember a private patient of his, about seven months pregnant, whom he sent for X ray examination immediately fœtal death was suspected. The fœtal haed was radiographically normal then, but another film taken fourteen days later showed the characteristic overlapping of death.

This overlapping has to be distinguished from the overriding that is associated with the moulding at labour. Here, though overlapping is present as in fœtal death, there is no contraction in the size or cubical content of the head. While the size of the fœtal skull remains unchanged, the shape alters, that is, bulging here, depressed there, and there is no concentric contraction of the cranial radius of the curvature. Some authorities, namely Stein and Arens, of Chicago, who have probably done more obstetrical X ray work than anyone else, claim that they have seen overlapping such as Spalding describes, and that a live child has subsequently been born. However, in the several cases we have had at the Women's Hospital Spalding's sign has always proved correct, except in one possibly doubtful case. This film, which was taken one month before labour set in, shows a slight overlapping of the fœtal skull bones at the occipito-parietal suture. It is said that this child was alive immediately prior to a difficult breech delivery, as the fœtal heart sounds were heard; when born, however, it was dead.

Congenital Syphilis.

X ray examination may, at times, be extremely valuable in the early diagnosis of congenital syphilis.

For the past eleven years at the Clinic of Whitridge Williams skiagrams have been taken of all dead children, partly for diagnostic purposes, but especially to permit comparison between the X ray, placental and autopsy findings. They are also taken in the case of all live children, whenever anything in the history suggests the possibility of congenital syphilis.

Every syphilitic infant does not show bone lesions radiographically. It is estimated that 25% give positive X ray findings. Cases, however, are not infrequent in which the X ray examination reveals evidence of *lues*, when no clinical or serological data are available for diagnosing the presence of this infection. The Wassermann test we know not to be dependable during the first two or three months.

When the skeleton is involved in syphilis, usually all the bones are not affected to the same extent; the lower end of the femur, the distal and proximal ends of the tibia, and the distal ends of the radius and ulna, are most frequently and most severely affected. No bones are exempt from syphilitic changes; even the bodies and processes of the vertebræ, the ribs and the bones of the skull do not escape. In the fœtal type of syphilitic bone reaction, the periosteal lesion is usually secondary in importance to the endochondral. After birth the periosteal reaction begins, and in older infants may be the most prominent skeletal lesion. The beginning of the process is marked by increased bony density at the metaphysis, which becomes broader and more homogeneous; it seems to form a cap on the ends of the trabeculated spongiosa. The dense metaphysis may be broken by the presence of small areas of rarefaction. At other times, the bone appears to end in a double line, so that two ends of heavily calcified tissue are seen separated from one another by a zone of rarefaction. Later, the areas of increased density and the line of rarefaction grow wider and their surfaces become irregular and jagged. The epiphyseal border of the metaphysis may develop a notched, serrated appearance.

The bones of the hands and feet give characteristic pictures in luetic osteochondritis and they are affected with surprising regularity and to a marked degree. Periostitis, when it occurs near term in the severe cases, may be present throughout the length of the bone, or only at the extremities. Sometimes the infection is so severe that a true acute syphilitic osteomyelitis with abscess and sequestrum formation develops. Dr. Southby recently had such a patient at the Children's Hospital; this child was born at the Women's Hospital and had been subjected to X ray examination by us immediately after birth, when characteristic osteochondritic changes were shown.

There are two other conditions encountered in children which give X ray appearances resembling those of congenital syphilis; they are scurvy and rickets in the healing stage; but fortunately in the first few weeks of life these do not have to be seriously considered in the differential diagnosis, since fœtal rickets never occurs, and scurvy is rare before the sixth month.

Monsters.

The radiographic ante-natal diagnosis of monsters may be made in only a certain percentage of cases, though it can be seen how the post-natal X ray study of the monsters can be of considerable scientific interest. It yields considerable information before the specimen is mutilated by the scalpel or dissecting knife. Ante-natal X ray demonstration of monstrosity should avoid embarrassment of delivery by Cæsarean section, and hasten termination of pregnancy in toxæmias. The frequent relationship between *placenta prævia* and monstrosities has led Greenhill to advise that in all cases of *placenta prævia* in which the head feels large or cannot be definitely felt, an X ray film should be taken.

Of the various fœtal monsters we have been able to demonstrate successfully before birth cases of hydrocephalus and anencephaly.

Anencephaly, or congenital absence of the encephalon and the cranial vault, is the commonest of all human monstrosities, about 14%. The fœtus is usually of the female sex. The characteristics are: (i) Rudimentary brain and spinal cord; (ii) lack of development of the bones of the cranial vault and sometimes of the laminæ of the vertebral column. If present, the poor development of the cervical laminæ causes lordosis, with compensatory kyphosis of the upper thoracic vertebræ, which allows the head to sink between the shoulders. The radiographs of this grotesque monster, sometimes called

the "frog" fœtus, show that, with the exception of the head and the upper spinal column, the fœtus is generally well developed. The skull shows a total absence of calvarium, though the bones of the base, including the occiput, can be readily seen. When present, the exaggerated fissure of the upper cervical spine may be recognized; otherwise, the bony shadows appear normal.

It might be mentioned that an anencephalic fœtus may easily be mistaken for a breech by the uninitiated, unless the whole of the fœtal skeleton is well-defined.

Pelvic Articulations During Pregnancy.

Radiography has demonstrated clearly the expansion of the pelvic girdle that occurs during gestation and during labour. It can now be definitely stated that frequently a decided alteration in the pelvic articulation does occur during pregnancy, this alteration consisting of a softening of the inter-articular substances and a widening or separation of the pelvic joints. The sacro-iliac synchondroses are much more readily affected than the *symphysis pubis*, and failure of these articulations to return to normal is said to be a cause of lumbo-sacral backache and sacro-iliac subluxation. These phenomena also afford an easy explanation of the virtue of the Walcher position.

The correlation of the clinical and radiological aspects of this subject are associated with the names of Lynch and Darling, of California. The separation of the symphysis, which frequently occurs in labour, was stressed by Professor Windeyer in his obstetrical lecture in this hall last November.

The superficial position of the symphysis lends itself to accurate radiological measurement, and the work of Brehm and Weirank, of Ohio, showed some degree of symphyseal separation in 50% of deliveries. If separation is under 0·9 centimetre they deem it a first degree of separation, if from 0·9 to 2 centimetres moderate separation, and over two centimetres severe separation. The first degree presents no clinical symptoms, but if separation is over 0·9 centimetre, definite symptoms are produced, of which the more prominent are retention or incontinence or possibly prolapse of the urethra and bladder, due to stretching or loosening of their attachments. First degree of separation occurred in 28% of Brehm and Weirank's deliveries, second degree or moderate separation in 24%, and third degree or severe separation, that is, over two centimetres in 1·85%.

Gross Bony Deformities of the Pelvis.

It is scarcely necessary to mention that simple radiography will enable the obstetrician to visualize clearly the gross deformities of the pelvis which cause dystocia, and amongst which are included those with hip or lower limb disease, spondylolisthesis, traumatic fracture of the pelvis, osteomalacia, the Naegele and Robert pelvis, the split pelvis, the kyphotic and scoliotic pelvis, the gross forms of rhachitic pelvis, pelvic osteochondromata, and the achondroplasic pelvis.

We have here an example of the achondroplasic pelvis, which is characterized by an extreme antero-posterior flattening, due to an imperfect development of the iliac bone entering into the formation of the ilio-pectineal line, owing to which the sacral articulation is brought much nearer the pubic bone than usual.[1] The true conjugate is rarely more than 6·8 centimetres (two and three-quarter inches); though the transverve is only slightly shortened. This woman, a typical achondroplasic dwarf, has had a previous Cæsarean section with delivery of a live non-achondroplasic child.

Fœtal Achondroplasia.

Here is an example of fœtal achondroplasia, this premature female infant having only one day of post-natal life. The very short broadened diaphyses for the long bones with their expanded metaphyses, which show a cup-like outline towards the epiphysis, is characteristic of fœtal achondroplasia. With the similarity of these bony appearances to those of active rickets, one can readily understand why the name fœtal rickets was at one time synonymously applied to achondroplasia. But it apparently has no connexion with true rickets. The bony changes of rickets do not appear until some months after birth, and the subsequent bony appearances and deformities vary greatly in the two diseases.

Many achondroplasiacs are stillborn, having died in the eighth month of intrauterine life. A considerable number are born prematurely and die soon afterwards, death being probably in most instances connected with the narrow rigid foramen and the resulting pressure on the cord. There may be difficulty in delivery, due to general œdema and ascites. If these achondroplasiacs survive the first year of extrauterine life, the disease does not shorten life except, of course, in pregnant women. We examined by X rays the mother of this child ante-natally, and the shortened, broadened long bones of the fœtus were demonstrated.

Lumbo-Sacral Abnormalities.

Particularly since the Potter-Bucky diaphragm has enabled the lumbo-sacral vertebræ to be clearly defined in every case, radiography has revealed the frequency of bony developmental abnormalities in the lumbo-sacral region. Common amongst these is sacralization, in which the fifth lumbar unites with the first sacral vertebra, giving six sacral segments, or, less frequently, lumbarization, when the first sacral segment adopts lumbar characteristics, producing six lumbar and four sacral vertebræ. The name "assimilation pelvis" has been given to the resultant pelvis; "high assimilation", when there are six sacral segments and "low assimilation", when there are four.

Changes in the shape of the pelvic cavity result from these abnormalities. In high assimilation cases the condition produces a pelvis which is high in its posterior portion. In some cases the superior straight is almost round. In other instances a transversely contracted superior straight is produced in which the true conjugate is either relatively or absolutely longer than the transverse diameter. It is said that this type of pelvis favours engagement of the head with the sagittal suture directly in an antero-posterior, instead of in an oblique direction,

[1] At this point Dr. Macdonald showed the film described.

as usual, so that it should be regarded as a factor in the production of primary anterior or posterior occipital presentations. Lumbarization, on the other hand, produces a pelvis which is shallow in its posterior portion, but which offers no particular obstacle to labour. Partial sacralization may produce an asymmetrical pelvis.

It is suggested therefore, that patients showing these lumbo-sacral abnormalities, which can be readily recognized in a single antero-posterior film of the lumbo-sacral region, are candidates for troublesome labour, and that their pelvic measurements might be accurately made.

Dr. John Green and Dr. Elliott True have raised the points with me as to whether these assimilation pelves are not amongst the causes of unpredicted dystocia which every now and then causes obstetrical anxiety.

X Ray Pelvimetry.

X ray pelvimetry and its practical value is a subject on which I should particularly welcome the opinion of clinicians.

The question that confronts radiologists is this: "Is X ray pelvimetry, which takes considerable time and trouble, really worth while?" Though I notice that mention of it is gradually creeping more and more into the text books, its uses, its limitations and its difficulties appear as yet to be imperfectly understood by some obstetrical authors. The answer to the question as to whether it is worth developing (for though a great deal has, up to the present, been accomplished, there is still considerable work to be done) appears to hinge on the answer to another question: "Are the present clinical methods of estimating disproportion entirely satisfactory?" In respect to the first factor in disproportion, the pelvic diameters, can we place much reliance on the diameters of the superior straight computed by clinical external and internal pelvimetry? Is the clinical estimate of the diagonal conjugate, or the palpation or non-palpation of the promontory of the value that obstetricians would desire? Modern X ray pelvimetry can give us the diameters and shape of the superior straight correct to within two to three millimetres. Do the obstetricians want this degree of accuracy in this factor? Is it necessary? Is the accurate measurement of the transverse diameter of the superior straight, such as can be obtained only by X rays, ever required? Of course, after all, the fœtal head is the best pelvimeter, and it is the relation of the size of the fœtal head to the maternal pelvis that really matters.

Are the clinical methods of estimating disproportion satisfactory? Accurate X ray estimation of the occipito-frontal and biparietal diameters is much more difficult than that of measuring the superior straight, but during the past year or so Herbert Thoms, of the Yale Obstetrical Department, who has been an enthusiastic sponsor of X ray pelvimetry for the last eight years, has been working on this problem apparently with considerable success. It might be noted that these measurements are made before the head is engaged. This calculation involves the assistance of an experienced obstetrician to help in the external localization of the brow and the occiput in order to give the radiologist the plane in which these two prominences lie. So it can be seen that it is a somewhat complicated procedure which would have to be justified by obstetricians being dissatisfied with present clinical methods. Even without absolutely measuring the cephalic and pelvic diameters, a simple lateral radiogram is useful in cases of suspected disproportion, because the direct relationship of the fœtal head to the antero-posterior diameter of the inlet may be determined. It is also of value in determining the exact descent of the fœtal head in those patients who are undergoing a test of labour. (It might be mentioned also that this lateral view outlines the relationship of the promontory and anterior surface of the sacrum to the posterior surface of the symphysis.)

Of course, even when we have arrived at the relative fœtal and maternal measurements, we are confronted with the doubtful factors of the strength of the uterine contractions and the resulting moulding of the fœtal skull bones, together with the amount of expansion of the pelvic articulations. Then again, there is the additional unknown factor as to what degree of moulding can be permitted without risk of infantile injury. When the outcome is questionable, because of the existence of disproportion, are we entitled to rely too much on the ability of the head to become moulded without resulting injury?

Are the practical rules that marked disproportion requires Cæsarean section or induction, and slight disproportion or doubtful disproportion justifies a trial labour, yielding happy enough results? I raise these queries on account of what I read in *The Journal of Obstetrics and Gynæcology of the British Empire* of 1929 under the authorship of Fitzgibbon, late Master of the Rotunda. Is this the voice of authority? This is what Fitzgibbon writes:

> At present the number of women treated by induction of labour and Cæsarean section is greater than the number of women who suffered from dystocia before the perfection and adoption of these methods of treatment, but the number of craniotomies, difficult deliveries, and disastrous results of delivery with the forceps is not diminished. It suggests that the application of operative interference for the purpose of avoiding dystocia is not wholly confined to cases calling for such treatment, while it is undoubtedly not applied to many cases in which it would benefit.

Of course, this cannot be true in such an institution as the Women's Hospital, but is it true of midwifery practice generally in Australia?

Technique of Pelvic Mensuration.

The radiological principles underlying pelvic mensuration are these: While it is true that a simple X ray exposure will give a fairly accurate idea of the shape of the pelvis and its inlet, owing to errors of parallax and foreshortening, the true dimensions of the superior straight cannot be so readily determined. The methods of radiographic pelvimetry are designed to correct these errors. Varying methods, achieving accurate results, have been devised, but the majority of them have the disadvantages of either requiring complicated mathematical calculation or expensive apparatus. The one I have been using lately is a modification of a "frame" method first described

in 1924 by Thoms,[4] and further elaborated in 1925 and in 1929.

The first step consists in the determination of the plane of the superior straight; and the surface anatomy of this plane includes two points: anteriorly, the superior border of the symphysis, and posteriorly, the depression between the spines of fourth and fifth lumbar vertebræ. If the spinous processes of the fourth and fifth lumbar vertebræ cannot be localized, the point in question can be determined by a position in the mid-line 1·25 centimetre (half an inch) above a horizontal line joining the two posterior superior iliac spines.

In 1896 Albert, of Dresden, conceived the idea of placing the plane of the superior straight, determined as above, in a plane parallel to and at a measured distance from, the film, when by employing the method of similar triangles the true dimensions of the pelvic inlet can be readily calculated from the radiographic projection on the film. The difficulty of Albert's method is in placing and maintaining the patient in such a position that the plane of the inlet is actually parallel to the film. With the patient sitting in such a position the X ray tube may be perilously near the patient's head, if focal distances of any practical length are to be used.

So Thoms thought of this idea. He places the patient in semi-recumbency, as near to Albert's position as is comfortably possible. The exact plane of the inlet is then determined, and also recorded, with a plane-finding instrument. A film is then made of the pelvis. The patient is removed from the table, the plane recording instrument set in position, and a thin lead plate, containing perforations one centimetre apart, is placed exactly in the plane of the superior straight. A snap exposure is then made on to the original film. The perforations appear on the film as black spots, which, owing to radiographic magnification, are a little more than one centimetre apart; but the true measurements of the diameters can be read off directly in centimetres simply by counting the number of perforations along each diameter.

In practice we first of all localize the posterior key point and mark it with strapping; place the patient on the Bucky diaphragm, supporting her by means of a specially constructed back rest, with the plane of the inlet as nearly horizontal to the film as the semi-recumbent position will comfortably permit. She is then immobilized in this position. The two key points, anteriorly and posteriorly, for the inlet plane are then recorded on the plane-finding instrument. The tube is then centred over the symphysis and subsequently moved cranially five centimetres, at which point it is regarded as centred over the mid-point of the brim. An exposure is then made. The patient is then removed. The plane-finding apparatus is now replaced in position, and the perforated lead plate placed in this plane; a snap exposure is made on the original film. After development of the film the pelvic diameters can be directly read off in centimetres.

It is claimed by Thoms that this method is correct to three millimetres. These diameters will, of course, be about one centimetre greater than those obtained by Skutsch's clinical pelvimetry, owing to the absence of the pelvic soft tissues. While the lateness in pregnancy to which this method can be utilized varies with the size and obesity of the patient, as a general rule it can be regarded as satisfactory up to mid-term.

One feels that in radiography we have a more accurate pelvimetry than that furnished by clinical methods, but whether this increased accuracy will result in better midwifery I must leave to my obstetrical colleagues to decide.

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THE USE OF SOME RECENTLY INTRODUCED DRUGS IN THE TREATMENT OF DISEASES OF THE HEART.[1]

By MARK C. LIDWILL, M.D. (Melbourne and Sydney),
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Quinidine.

QUINIDINE, when used properly and with great care, is of enormous value in the treatment of auricular fibrillation and paroxysmal tachycardia; the great thing is to know when to give it. We will consider its use in auricular fibrillation first.

Quinidine in Auricular Fibrillation.

There are certain precautions to be taken before deciding on the administration of quinidine.

It should never be given where there is either marked cardiac failure, enlargement, acute rheumatic fever or syphilis.

It should never be given to a patient suffering from fibrillation of longer standing than six months.

It should be discontinued immediately if it sets up any symptoms of poisoning, namely, headache, vertigo, vomiting and precordial pain.

If the fibrillation stops, it should be given continuously, but only in small doses.

The Action of Quinidine.

To put it shortly, quinidine acts on the heart by slowing the auricle and afterwards raising the rate of the ventricle. It does this latter by inhibiting the action of the vagus. So before quinidine, is given the patient must be completely saturated with digitalis. This, as you know, acts largely by stimulating the vagus and preventing the opening up of the auriculo-ventricular bundle, and so stops the auricle from showering impulses upon the ventricle.

Method of Administration.

Now having selected a suitable case for quinidine, what is the procedure?

First, put the patient to bed, then saturate him with digitalis until the cardiac rate comes down to about seventy per minute or a little lower. Now

[1] Read at the second annual reunion of the Residents' and Ex-Residents' Association, Royal Prince Alfred Hospital, Sydney, October, 1931.

give 0·3 gramme (five grains) of quinidine and wait twelve to twenty-four hours.

If there is no susceptibility to the drug, give 0·3 gramme (five grains) three times a day. Continue this for two days, increasing the dose by 0·3 gramme (five grains) daily, until a dose of 0·6 to 0·7 gramme (ten to twelve grains) three times a day is being given. After this dose has been given for twenty-four hours, the administration should be stopped. Of course, if normal rhythm appears earlier the dose must be at once cut down.

When quinidine is being given, the patient must be watched very carefully for a rising cardiac rate. If the cardiac rate rises over 100 per minute up to about 110, the administration of quinidine must be immediately stopped and digitalis given again straight away. If this is done, it will be found that the cardiac rate will reach normal in about eight or twelve hours. I generally order four cubic centimetres (one fluid drachm) of tincture of digitalis in one dose if the cardiac rate rises above 105 per minute.

If quinidine is being given the patient must be watched extremely carefully, and the medical attendant must see him three or four times a day. If the quinidine does not act, it is no use trying again. After the fibrillation has been cured, the patient must continue taking 0·18 gramme (three grains) two or three times a day, and he must, on no account, cease taking it. If this dose is too large, smaller doses such as 0·09 to 0·12 gramme (one and a half to two grains) three times a day may be given.

The danger of embolism caused by quinidine might be mentioned, but the chance of this is so small that it may be neglected if quinidine is given only in specially selected cases.

It is found that immediately the fibrillation stops, the patient experiences relief and a feeling of great improvement. It should be remembered that fibrillation lowers cardiac efficiency by 22% to even 40%.

Quinidine is particularly useful in paroxysmal fibrillation, when attacks are frequent, or of such length to justify continuous medication. A dose of 0·3 gramme (five grains) of quinidine two or three times a day, without any preliminary administration of digitalis, is generally sufficient to prevent the recurrence of fibrillation. In hyperthyreoidism cases the results are not so good as in others.

Quinidine in Ventricular Tachycardia.

In the treatment of ventricular tachycardia quinidine sulphate has almost a specific effect in restoring normal rhythm, and it may even save life.

Ventricular tachycardia may generally be diagnosed, without the aid of an electrocardiograph, from other forms of tachycardia by the following three points:

(i) The rhythm is rapid and is essentially regular, but on very careful examination, slight irregularities can be detected. (ii) The quality of the first heart sound varies in intensity in some of the cycles. (iii) The attempt at vagal or ocular pressure proves ineffective in slowing the pulse rate.

The dose of quinidine sulphate in this case is 0·3 gramme (five grains). This should be repeated every four to six hours, being raised by 0·09 to 0·18 gramme (one and a half to three grains) each dose, or, in urgent cases, by even greater amounts. After the return to normal rhythm, the patient takes, for a variable length of time, 0·18 to 0·27 gramme (three to four and a half grains) three times a day, or more often if necessary.

Auricular Tachycardia.

Occasionally auricular tachycardia is relieved by quinidine, but generally speaking, digitalis is more satisfactory. The dose of quinidine in this condition should be 0·12 to 0·18 gramme (two to three grains) two or three times a day.

Ouabaïn.

Ouabaïn is really a crystalline strophanthin. Practically all the other strophanthin bodies are glucosides. It was introduced by Arnaud for Vaquez, and it is supposed to increase the contractile power of the heart and the heart's tonicity very much more than digitalis. Its other actions resemble those of digitalis, but are less potent. This drug has been well tried out by me at the Royal Prince Alfred Hospital, and I cannot speak at all favourably of it as compared with digitalis. Possibly the storage after manufacture may account for its inactivity. Storage in soft glass bottles, according to certain authorities, destroys its potency within three weeks.

Drugs That Increase the Flow in the Coronary Vessels.

We now come to a series of drugs which increase the cardiac efficiency by increasing the coronary circulation. They do this by dilating the coronary vessels. Many of these drugs are known to you, but possibly not how they act.

Caffeine is an almost useless drug in cardiac disease, only increasing the coronary circulation by two or three *per centum*.

Diuretin increases the coronary circulation by 18% to 22%.

Theocin increases the circulation very much more, and "Euphylin" is said to be even more efficient. The indication for these drugs is the desirability for an increase in the coronary circulation.

In the case of heart failure, where there is no fibrillation, the use of theocin, particularly in doses of 0·12 to 0·24 gramme (two to four grains) three times a day, continued for some weeks, improves the patient's condition considerably.

"Euphylin" I have not used very much as very little of it has been made available for my use.

In *angina pectoris* theocin is very useful, but it must be given continuously, and the doses must be adjusted to the feelings of the patient. A dose of 0·18 gramme (three grains) three times a day is usually as much as the patient can take continually, and it may have to be reduced to even 0·06 gramme (one grain) twice a day. Patients sometimes complain that it gives them some precordial pain; if this occurs, reduce the dose but go on with the drug.

In angina a mixture of pheno-barbital 0·09 gramme (one and a half grains) and diuretin 0·03 gramme (five grains) will often give considerable relief, and

if taken for some time, may entirely relieve the precordial pain.

Whether these drugs increase the coronary circulation or not entirely depends upon the condition of the coronary arteries. If there is much arteriosclerosis in these vessels, these drugs will be of very little use.

I have not had the opportunity to try out "Locarnol".

Camphor and Allied Substances.

A thorough test has been made of the use of camphorated oil and the synthetic camphor bodies, and I have come to the conclusion that they are absolutely useless, and seem to have no cardiac stimulating properties whatsoever. "Camphydril" (Robin) seems to be more satisfactory.

"Acetyl Cholin" has been tried out in numerous cases of high blood pressure, and only in one case was there any improvement that could be attributed to the drug. Here again we probably have to do with the decomposition of this body before it reaches the physician.

"Novasurol."

"Novasurol" is probably the most powerful diuretic that we possess. It is given intramuscularly or intravenously when such diuretics as digitalis, diuretin and theocin fail to act. The idea of giving mercury is not new. Guy's pill is of very old standing. Calomel in a dose of 0·18 gramme (three grains) five times a day, for two days, has been used in Germany for the last forty years; I used it in my own practice since I graduated, until "Novasurol" was introduced.

The intramuscular method of administration is to be preferred. The dose is one or two cubic centimetres given about every four or five days. If, after two or three injections, the œdema is not markedly lessened, it is advisable to combine this drug with the oral administration of ammonium chloride. I have found the best method of giving ammonium chloride is in one large dose of 5·4 to 7·2 grammes (ninety to one hundred and twenty grains) followed in about one hour by 1·5 cubic centimetres of "Novasurol" intramuscularly, or one cubic centimetre intravenously.

Care should be taken with the use of this drug when the patient is suffering from chronic interstitial nephritis. These patients are not so tolerant to mercury. The difficulty of determining whether there is chronic interstitial nephritis or not is often overcome by careful examination of the urine. Practically all patients suffering from cardiac failure with œdema, from whatever cause, pass considerable quantities of albumin in the urine. But, if there are urates present, one can at once eliminate chronic interstitial nephritis. The urine must be cold to deposit urates. In the winter it is enough to let the urine stand for two or three hours, but during the summer the urine may have to be deposited in an ice-chest before the urates will precipitate.

Barium Chloride.

Barium chloride is occasionally useful in heart block, when the cardiac rate is very slow. This drug sets up ventricular extrasystoles which alternate with the slow normal ventricular beat, and by this means considerably increase the cardiac output per minute. The dose generally ordered is 0·06 to 0·09 gramme (one to one and a half grains) two or three times a day.

Reports of Cases.

VOLVULUS OF SMALL INTESTINE.

By H. SKIPTON STACY, M.D., Ch.M. (Sydney), F.R.A.C.S., *Sydney.*

HAVING had three cases within eleven months of volvulus of the small intestine, I desire to record the histories, together with some personal observations, and to make some extracts from the literature. In volvulus the intestine is twisted round its mesenteric axis.

Case I.

S.L., aged seventy-two years, a farmer, gave a history of having been constipated for some months, but worse lately. Four days previously he had great pain in the left loin, extending to the epigastrium and followed by vomiting; the pain eased down after a while. Next day he complained of severe pain about the umbilical region, followed by vomiting. The bowels were not open.

He was sent to Sydney Hospital next day (April 13, 1929). Here he was given an enema with a good result, and was seen by me next morning. His general condition was good. His temperature and pulse were normal. The abdomen was soft and not distended; slight general tenderness was present. The urine contained a cloud of albumin. He gave a history of having had enteric fever thirteen years previously. His chest was normal. Stethoscopic examination of his heart revealed no abnormality.

Next day he was given a barium enema. Dr. Cutler reported the presence of colitis; no evidence of obstruction or neoplasm was seen. The sigmoid was redundant. The barium enema evidently accentuated his trouble, for next morning he had fæcal vomiting, his pulse was feeble and extremities cold. He was given two pints of normal saline solution subcutaneously, his stomach was washed out immediately and again prior to operation at 2 p.m.

The abdominal wall was infiltrated with 0·5% "Novocain" in the mid-line, and an incision 12·5 centimetres (five inches) long, partly above and partly below the umbilicus, was made; when the incision was made through to the peritoneal cavity he was given gas and oxygen anæsthesia.

The large bowel was apparently normal, except for several areas showing some muscular spasm. No neoplasm was present, and the bowel was certainly not collapsed; if anything, it was distended. The lower end of ileum was normal, but a little further up, about 50 to 60 centimetres (twenty to twenty-four inches) from the ileo-caecal junction, it was collapsed, and above that again, moderately dilated, due to torsion of the mesentery. The mesentery was not unduly long, nor could anything pathological be found about it, except the torsion. The vessels were engorged, but not thrombosed; the dilated bowel was somewhat engorged, but otherwise normal. The torsion was untwisted from left to right; I should say about 120°. The whole operation was done with only a moderate amount of evisceration. The abdominal wall was closed in the usual way.

Convalescence was quite uneventful, there being no recurrence of symptoms. The bowels were opened by enema several days later, and subsequently by aperients. The patient was discharged from hospital in three weeks. This patient has remained well, except for an incisional hernia; he has had no bowel symptoms whatever.

Case II.

E.R., aged forty-seven years, was admitted under my care into Sydney Hospital on February 24, 1930. She complained of severe abdominal pain since the day before admission and of vomiting that morning. Her bowels acted regularly and were open on the day before admission. She had had dyspepsia for years. She had no urinary symptoms, nor had she had a previous attack like this. No jaundice was present; no menorrhagia or dysmenorrhœa had occurred for years. Otherwise there was nothing of importance in the past history.

Examination of the abdomen revealed diffuse tenderness, some distension, some rigidity in the right iliac region, and some retroversion of the uterus. The temperature was 37·6° C. (99·8° F.), and the pulse rate 98 in the minute. Laparotomy was performed within a few hours of admission, because of the rigidity. (The condition was thought to be one of acute appendicitis.) The usual gridiron incision was made. On opening the peritoneum there was an escape of serous fluid; the appendix was normal. The incision was extended medially (Weir's modification). About 90 centimetres (three feet) of the ileum, about 60 centimetres (two feet) from the ileo-caecal junction, were distended and injected, the serous coat being dotted with petechial hæmorrhages. The mesentery was similarly dotted. The condition was due to torsion of the mesentery; it was unfolded and the wound was closed.

Convalescence was particularly uneventful, the bowels being opened by enema in forty-eight hours, and subsequently by liquid paraffin. She has had no symptoms since discharge from hospital.

Case III.

A.R., aged forty-three years, was admitted into Sydney Hospital under my care on March 28, 1930. His history was that a week ago he commenced to vomit and continued to vomit every ten minutes; he had become increasingly constipated and had passed nothing for four days, in spite of several enemata. His past history revealed that he had never worked in lead and had had no previous constipation. He was treated for influenza in 1919 and gastritis in 1928. He had both smoked and drunk in moderation; he had had gonorrhœa.

On examination, he was lying quietly in bed, in no obvious pain. The tongue was coated, but moist; pyorrhœa was present. There was no blue line on the gums. The abdomen was tense and rounded, the umbilicus was everted; no dilated veins were present; no peristalsis was seen on flicking the abdomen. Moderate rigidity was present. Neither tenderness, palpable mass, fluid thrill nor hernia was present. The abdomen was tympanitic all over. There was no dulness; the liver dulness was decreased. Auscultation revealed stenosis sounds. The pupils reacted to light and accommodation. The knee jerks were normal.

The patient was admitted with a diagnosis of intestinal obstruction. He was given an enema with no result. Later in the day he vomited 140 cubic centimetres (twelve ounces) of fæculent material. The temperature was 36·7° C. (98° F.) and the pulse rate 100. One and a half hours later he was operated upon.

Under gas and oxygen anæsthesia an incision was made in the mid-line above the umbilicus. A considerable portion of the small bowel was found to be very distended and injected, due to torsion of the mesentery. Manipulation of the distended bowel caused rupture. In attempting to undo the torsion, another tear of the bowel occurred at the site of an adhesion to the great omentum. Drainage tubes were inserted into both tears. His condition was so bad that the abdomen was closed without anything further being done. He died several hours later, the temperature in the meanwhile being 38·3° C. (101° F.), the pulse 140.

An autopsy by Dr. Telfer showed the stomach to be enormously dilated; the duodenum appeared normal. The jejunum in its whole extent was considerably dilated. The ileum was collapsed. Approximately at the jejuno-ileal junction there was a fine strand of adhesion connecting the mesenteric border of the bowel with the inferior aspect of the great omentum at its junction with the middle of the transverse colon. Around this strand the whole of the jejunum was twisted in a clockwise manner, about two and a half times. The traumatic perforations were about 15 centimetres (six inches) and 30 centimetres (twelve inches) up the bowel from the site of the adhesion.

The transverse colon, with its attached omentum (which was very poorly developed and small), was pushed behind the coils of jejunum and lay adjacent to the duodenum, gall bladder and stomach. The rest of the alimentary tract appeared normal. The heart showed signs of chronic myocarditis. Slight tuberculous scattering was present in the apex of the left lung. The right pleural cavity was obliterated with dense adhesions.

Summary.

In two cases out of the three the earliest symptoms were abdominal pain, followed by vomiting; in the third case the history mentions vomiting only, but the patient was very ill and may not have remembered the pain.

In the case in which the location of the initial pain is mentioned, it was in the left loin and later in the umbilical region (the torsion was in the lower part of the ileum). Constipation was a feature where the torsion was of any considerable duration.

There was nothing striking in the past history of any of the patients that might throw light on the ætiology. Rigidity of the abdominal wall was usually present; in one case over the site of the lesion only.

The temperature was usually normal or slightly above 37·2° C. (99° F.). The pulse was in the vicinity of 100. Fæcal vomiting was present in two out of the three cases; it was absent in the mildest case.

In two cases the torsion was found in the lower part of the ileum, several feet of bowel being involved; in the advanced case a large portion of the jejunum was affected.

In two cases the direction of rotation was clockwise; in the third case the notes do not mention the direction, and I cannot recall it.

In one of the patients who recovered, the torsion was to the extent of about 120°; in the fatal case, two and a half times or 900°.

Literature.

I am indebted to Dr. Leila Keatinge for an extract from some of the rather scanty literature dealing with the subject. From this I gather that in 1903 George Vaughan collected records of sixty cases of volvulus of the small intestine, in twenty of which it was of the entire small intestine and torsion of the whole of the mesentery. In 1924 Wheeler found that among 77 reported cases there were 25 recoveries, all after operation.

Mudenee, of the General Hospital, Massachusetts, in examining 239 patients with intestinal obstruction over twenty years, found 25 with volvulus, ten being of the small intestine.

In the London Hospital for thirteen years there were 669 cases of intestinal obstruction, of which 27 were volvulus involving the small intestine.

As regards direction, the majority seem to have been clockwise.

As regards ætiology, many causes are suggested. (i) Bands or adhesions following peritonitis, some perhaps congenital in origin, have been blamed. (ii) In some, long mesenteries are said to be present, therefore a greater range of action in peristalsis being possible. (iii) On the other hand, congenital maldevelopment of the mesenteric pedicle in the shortening of its vertebral attachment to the posterior abdominal wall was said to be frequently present.

There is a 100% mortality without operation.

In one series of 77 cases, 57 patients were operated upon and 25 recovered. All were operated on in less than forty-six hours after being seen. The treatment consists merely in untwisting the bowel.

Reviews.

OBSTETRICS.

"MIDWIFERY", by ten teachers, edited by Comyns Berkeley, J. S. Fairbairn and Clifford White, is designed for students preparing for their final examination, in the hope that it will prove useful to them afterwards, and to others who have passed beyond the stage of examinations. The book is divided into five sections.[1]

Section 1, dealing with pregnancy, starts with a description of ovulation, menstruation, and fertilization, and goes on to a description of the placenta, the growth and development of the fœtus, the physiological changes induced by pregnancy, the duration and diagnosis of pregnancy, and antenatal hygiene. Then follow chapters dealing with abnormal pregnancy. In these are discussed the toxæmias and all the various diseases which may be associated with pregnancy. This section is well written and gives a clear and concise account of the modern views on these subjects.

Section 2, dealing with labour, begins with an account of the anatomy of the pelvis and the fœtal skull. This is followed by a description of normal labour. Abnormal labour is next dealt with. A full description is given of all the various abnormal presentations, contracted pelvis, disproportion, the hæmorrhages *et cetera*. The authors have given up the terms "primary" and "secondary" uterine inertia and prefer to call primary inertia "sluggish uterus", and secondary inertia "exhausted uterus". Late in the second stage in the management of "exhausted uterus", the administration of ergotin in a dose of 0·6 to 1·0 cubic centimetre, or pituitary extract, 0·5 cubic centimetre, is recommended. This seems strange, as for many years it has been taught that preparations of ergot should never be administered before the delivery of the fœtus and placenta. Also the administration of such a dose of pituitary extract is sometimes attended by very severe contractions; a smaller dose is preferable to begin with.

The hæmorrhages are well discussed. *Placenta prævia* is described now as being of two varieties, complete and incomplete. The complete variety is when the finger, passed through the cervical canal, cannot reach the membranes, and the incomplete is of two varieties: (i) When the placenta comes down to the internal os and its edge can be reached by the finger; and (ii) when the placenta does not reach as low as the internal os, but is situated partly on the lower segment.

In regard to the measurements of the pelvis, it seems a pity that more uniform measurements could not be adopted in Great Britain and America. Nearly every author finds a difference of about 0·6 centimetre (a quarter of an inch) in some particular diameter. Surely, when such variability is found, it would be more satisfactory to deal with approximate figures easy to memorize, omitting the eighths and quarters of an inch so meticulously given, and thus make it easier for the student to recognize the essential differences in the diameters.

Section 3 is concerned with the puerperium, and is well and sensibly discussed.

Section 4, dealing with the new-born child, is very good, and stresses the importance of this aspect of midwifery, so often neglected by medical practitioners.

Section 5, on the relief of pain and suffering in obstetric practice, deals with the drugs and anæsthetics commonly used, the use of pituitary extract, obstetric operations, and the artificial termination of pregnancy.

In this, the fourth edition, the physiology of ovulation and menstruation, toxæmia of pregnancy, abortion, puerperal sepsis, and anæsthesia in labour, have been almost completely rewritten, and new matter has been added on the medical induction of labour and blood transfusion. The writers are all teachers in London medical schools, and among them are represented eight general hospitals with medical schools, and three large lying-in hospitals. The effort has been made to include the collective wisdom and experience of all the schools it represents, hence the editors have included views which have received wide acceptance, and have endeavoured judicially to indicate differences in opinion and practice. This effort to obtain unanimity of view is very often a source of weakness to some extent, but the authors are to be congratulated on the result of their efforts. The popularity of the book has been shown by the need for a fourth edition.

This book gives a very sound exposition of modern day obstetrical methods and treatment. It is well arranged, the type is easy to read, and we can thoroughly recommend it to all students and practitioners.

[1] "Midwifery", by Ten Teachers, under the Direction of Comyns Berkeley, M.A., M.D., M.C., F.R.C.P., F.R.C.S., F.C.O.G.; Edited by C. Berkeley, J. S. Fairbairn and C. White; Fourth Edition; 1931. London: Edward Arnold. Royal 8vo., pp. 751, with illustrations. Price: 18s. net.

OPERATIONS ON THE ABDOMEN.

"THE MANAGEMENT OF ABDOMINAL OPERATIONS" is the title of a little manual, by Rodney H. Maingot, that treats of a subject on which we can never have too much information.[1]

Until comparatively recently there was scarcely any literature dealing with the after-care of the patient whose abdomen had been opened. The present work is one of many that are now available, and is worthy to take its place alongside the best of the others as a source of help in what may prove to be a difficult situation. It is very practical and up to date, and in the main it is sound and helpful and not likely to lead the reader astray on any important point.

The author confesses to being somewhat dogmatic on some debatable points, and so he is, in a naïve way that gives no offence and certainly will do no harm.

We consider that his views on drainage after operation are sound. Here he is certainly not dogmatic, but steers a middle course, not favouring one opinion more than another. In his notes on the preparation of a patient who is to undergo an abdominal operation, there is possible room to cavil at the statement that full diet may be allowed up to six hours before the time fixed.

The book may be read with profit by any surgeon, old or young, and is well worth purchasing as a book of reference.

SURGERY IN EMERGENCIES.

THE second volume of "Emergency Surgery", by Hamilton Bailey, is a book which can be read with enjoyment.[2] The language is lucid and arresting, there is no redundancy, and the illustrations are clear, without being diagrammatic to the point of uselessness.

The writer shows himself to be a master of the problems of the casualty room. Experience has impressed these problems on his mind, and a facile pen translates them so that he who reads may read with pleasure and profit. Being a book for graduate surgeons, it is not overburdened with regional anatomy or physiology, yet, where required, the essential points from these basic subjects are noted with clarity.

The chapters on the eye, and on the ear, throat and nose, which are written by specialists, come up to the general standard of the book, and that is high praise.

The publishers are to be congratulated on the production of this book. The illustrations are excellently reproduced, and the printing and paper conform to the high standard set by the author.

[1] "The Management of Abdominal Operations", by R. H. Maingot, F.R.C.S.; 1931. London: H. K. Lewis. Crown 8vo., pp. 323. Price: 7s. 6d. net.

[2] "Emergency Surgery", Volume II: Thorax, Spine, Head, Neck, Extremities, etc., by Hamilton Bailey, F.R.C.S.; 1931. Bristol: John Wright and Sons, Limited. Royal 8vo., pp. 432, with 430 illustrations, some of which are in colour. Price: 25s. net.

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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PUBLIC HEALTH AND THE GENERAL PRACTITIONER.

COOPERATION between the general practitioner and departmental medical officer has been sought for many years. It has been the subject of report and of royal commission, it has been discussed at congresses and has been mentioned at many a British Medical Association meeting. Most medical practitioners will agree that cooperation between departmental and private practitioners is necessary. If they are not prepared to assent to this statement, they will probably not be bold enough to dissent from it. By dissension they would be flying in the face of obvious necessity and would be declaring either their laziness, their incapacity or their fear of alienation of their patients. It is not necessary to traverse the many arguments as to why the official and the private practitioner should work together; to do this would call for a lengthy treatise on preventive medicine. Nor is there need to show that the general practitioner belongs to the front rank of those fighting disease, that he is at once the sentry and the front line of defence.

During the last ten years many efforts have been made to coordinate the forces of the medical profession in Australia, to make them more effective. Though much progress has been made in this direction, it must be owned that the organization is not complete. In 1925 what was known as the Hone-Newland report was presented to the Federal Committee of the British Medical Association in Australia. This was an exhaustive document and dealt with the whole question of cooperation between medical practitioners and the Commonwealth Department of Health. It was pointed out that the present system was unsatisfactory, and a scheme was outlined which would utilize the available Commonwealth and State services and which would at the same time bring the general practitioner into active participation. The relation which should exist between public health authorities and medical practitioners was considered by the Royal Commission on Health which published its report at the end of 1925. The Commission agreed with the Federal Committee that the medical practitioner should be the unit of the medical side of the administration and should:

1. Notify to this health officer on prescribed forms: (*a*) all births and still-births, (*b*) all deaths, (*c*) all cases of communicable disease prescribed by the regulations, (*d*) all cases of mineral or organic poisoning.
2. Order in writing methods prescribed by the health authority of concurrent and terminal disinfection in infectious cases.
3. Carry out the methods prescribed by the health authority for the prevention of the spread of infection by contacts or carriers.
4. Carry out medical inspection of school children in particular districts by arrangement with the district health officer and education authorities.
5. Carry out other health duties as prescribed from time to time by regulations or as requested by the district health officer.
6. Be entitled to receive adequate fees.

The Commission also thought that when a death occurred in his practice in connexion with childbirth, a medical practitioner should immediately forward to the district medical officer of health a special report giving particulars of the case, and that he should also furnish such returns of cases of illness attended by him as might be required by the district medical officer of health. Although the organization of Commonwealth and State departments is not such that these duties can be carried out as part of an integral scheme, nearly every one of the duties mentioned can be performed by medical practitioners under the present system.

Many of them are required by the Commonwealth and State laws. The non-existence of health service coordinated as the Royal Commission on Health would have it coordinated, does not absolve the medical practitioner from compliance with legal requirements.

In this week's issue there appears a paper by Dr. George E. Cole, one of the District Health Officers of Victoria. This paper is recommended to the careful study of every practitioner, whether he is resident in Victoria or not. It will surprise many readers to learn that one in every five general practitioners in Victoria is a health officer. In many places medical practitioners are doing quiet and useful work in preventive medicine, and doing it in such a way that departmental officers can pursue it to its logical conclusion. These practitioners, when called upon to forward reports to councils and other lay bodies, would be well advised to follow Dr. Cole's advice in regard to using their reports to greater advantage. At the same time it must be acknowledged that some medical practitioners, particularly in the country, are utterly negligent of their public health duties. They seem to think that they have no responsibilities in this direction. This is most noticeable in the treatment of diphtheria and the neglect of contacts with diphtheria patients. They belong to the type of practitioner who harps on "the bogy of nationalization" and resents a praiseworthy desire on the part of other people to do the work that he himself neglects. The neglect of some general practitioners is partly the result of the apathy of part-time officers of health. The health departments in the several States would do well to review their public health appointments and to pay particular attention to the holders of part-time positions. The departments might also consider whether the methods at present in use in making appointments from the ranks of general practitioners are producing the best results. If the departments discipline their own appointees, there may be some hope of wakening others to a sense of their duty. We have described the general practitioner as the sentry and the front line of defence. The defence cannot be effective if some of the sentries are asleep and if there are gaps in the front line.

Current Comment.

HEAD INJURIES.

THE stereotyped provisional diagnosis "probable fracture of the skull" adopted by the present day casualty surgeon is inspired by the proper spirit of caution with which he has learned to regard all injuries to the head. Unfortunately the implication lingers that the integrity of the cranium is the primary consideration. It should not be necessary to labour the point that in head injury fracture of the skull is of secondary importance to injury to the brain. The presence of a fracture may give some indication of the severity of the trauma, its location may put the surgeon on his guard for possible complications, its type may govern his treatment, but the prognosis is not necessarily influenced by it. In hospital and, to a large extent in the records, use and wont and the lack of a more convenient tag result in the retention of the label "fracture of the skull" for intracranial injuries in general.

Patients suffering from severe head injury may be placed in one of three categories: those who will recover without or in spite of active treatment, those who will die in any event, and those whose recovery is dependent on the treatment adopted. The third group often present perplexing problems, which are not simplified by appeal to the experience and findings of others. Reference to the literature demonstrates lack of uniformity in classification, wide variation in statistics and difference of opinion as to management and treatment.

H. E. Mock[1] has reviewed 20,000 cases of skull fracture and intracranial injury appearing in the literature since 1900, and has made statistical study of 8,649. He exemplifies the widely divergent opinions by quoting mortality figures for all basal fractures of the skull: Cushing (1909) 80%, Frazier (1909) 59%, Rawlings (1904) 32%. He is convinced that too many patients with fracture of the skull have been operated on in the past. He points out that during the second decade of this century, when decompression operations were the vogue, the death rate was highest; from 1920 to 1928, when operations were becoming less frequent, the death rate was 17% less. It is evident, however, that many surgeons still believe in and are doing decompression operations to relieve intracranial pressure. Since, with the possible exception of the patient with middle meningeal hæmorrhage with extradural clot, it is extremely rare that an operation in the first twelve hours will save a patient who is going to die without it, and as a large percentage of patients die of shock rather than of the cerebral injury *per se*, Mock holds that intelligent care of shock is the first and sole duty in the initial treatment. No fractured skull should be undiagnosed, but a badly shocked patient should not be rushed to the radiologist, and there is no justification for the immediate suture of scalp wounds when the skull

[1] *The Journal of the American Medical Association*, November 14, 1931.

is injured. Where there is a dirty compound fracture with brain substance oozing out, he recommends that the wound should be cleansed as thoroughly as possible at the bedside, not in the theatre. Many scalp wounds are so impregnated with dirt that any attempt to cleanse them must be unsatisfactory. In such cases, especially when there is laceration, the practice of excision of the wound, as practised by surgeons during the war, would be more satisfactory than wearisome or perfunctory attempts to wipe it clean. Discharging ears need only the instillation of a few drops of silver protein solution and a plug of sterile wool. The subsequent care of such wounds should not, however, be left to the nurse. Shock must be treated. Dehydration methods, to relieve œdema of the brain, should not be started until shock has been relieved; they should not be carried to the danger point, and after forty-eight hours fluid intake should again be pushed. Close observation and common sense must govern the actions. Starvation must be prevented, the stomach tube being used to feed the unconscious patient when necessary. A fixed dilated pupil usually indicates a brain lesion and hæmorrhage on the same side of the cortex, but it should not be the sole indication for operative intervention. The equally contracted fixed pupils are suggestive always of basilar injury and hæmorrhage, but the prognosis is not necessarily hopeless. Changes in the reflexes and Babinski or Oppenheim signs are suggestive of pyramidal injuries. Often these signs are only temporary. When persistent, they may be the only focal signs of a subdural hæmorrhage. Definite paresis, paralysis, convulsions or twitchings are the usual focal signs of an extradural or subdural hæmorrhage, but both may fail to give definite local signs or they may give signs which last for only a few moments. One must be alert to note these temporary focal signs. The patient's condition may repeatedly improve after lumbar puncture, and he may relapse later in the presence of an extradural hæmorrhage. This type of patient requires operation. If the lesion is not found on the indicated side of the skull, the opposite side of the skull should be opened without hesitation, as *contre coup* injury to the brain is not infrequent. Operation is also indicated for definitely depressed fractures and where signs and symptoms persist in spite of lumbar puncture.

Lumbar puncture is advocated by some authorities as a routine procedure in all cases of fractured skull, while others are altogether opposed to its employment. Mock considers that there are definite indications for its use, namely, persistently disturbed consciousness, a persistently slow pulse and respiration rate, marked changes in the blood pressure, signs of persistent or of returning increased intracranial pressure, appearance of papillœdema, signs of meningitis or meningeal irritation, doubt in diagnosis. A commencing papillœdema certainly warrants lumbar puncture, but when there is a definite choked disk, operation is usually futile. Meningeal irritation is prone to develop when the cerebro-spinal fluid is found to contain blood for forty-eight hours or longer. It is difficult to differentiate meningeal irritation from a true meningitis, but both conditions warrant lumbar puncture. In true meningitis, repeated punctures, even cisternal or ventricular, offer the best chance. The patient with developing medullary compression should have the benefit of lumbar drainage, even while shock is being combated. The best guide to medullary compression in a newly admitted patient suffering from shock is a rise of temperature. Death, however, usually occurs. Lumbar puncture may be indicated in the differential diagnosis of the state of unconsciousness where there is no history of injury and little evidence of trauma.

Mock gives a further analysis of 100 cases of skull fracture treated by himself and classified according to symptoms and the line of treatment adopted. Fifty *per centum* were given a rational routine treatment, 4% were treated by simple rest in bed, 33% had lumbar drainage in addition to routine treatment, and 13% had definitely recognized indications for cerebro-cranial operations. He emphasizes the need of prolonged rest in bed in all cases. Three weeks is a minimum, while six to eight weeks or longer may be necessary.

V. M. Coppleson, at the Third Session of the Australasian Medical Congress (British Medical Association) drew attention to the importance of the continuous observation of the state of consciousness of patients suffering from head injuries and of the manner of its variation. By the arbitrary division of the degrees of impairment into deep and light unconsciousness, semi-consciousness, drowsiness and dulled consciousness, a graphic record can be kept on the chart and studied in conjunction with the variations in the pulse, blood pressure, respiration rate *et cetera*. He showed four types of chart, corresponding to the recovering patient, the moribund patient, the patient with cerebral œdema, and the patient with hæmorrhage. He stressed on the one hand the culpability of early operation on a shocked patient (even for depressed fracture of the skull) and on the other the necessity for constant vigilance if there is any suspicion of extradural or subdural hæmorrhage, when operation is always indicated before the signs of medullary compression —a rising temperature and pulse rate and falling blood pressure—have established themselves.

Coppleson and Mock both refer to the confusion of opinion in the literature and are in entire agreement on the vital points. Moving the patient with serious head injury from place to place prejudices his chances of recovery, and it is therefore vital that an unequivocal scheme of treatment should be authoritatively outlined which will define the indications for special measures and narrow the responsibilities particularly of medical practitioners, whose opportunities are limited, but in whose practice the occasion may at any time arise. The charts suggested by Coppleson would seem to have particular value.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Rôle of the Liver in the Control of the Acid-Base Equilibrium.

G. S. McCLURE (*American Journal of Physiology*, January, 1932) has found that under basal conditions the hydrogen ion concentration of the blood is low in the hepatic veins, higher in the arterial tree and higher still in the portal vessels. Variations in the oxidation of lactic acid and its concentration in the blood were produced by the intravenous injection of sodium cyanide. There resulted a large increase in the hydrogen ion concentration of the portal blood and a relatively small increase in that of the blood in the hepatic veins. This phenomenon was independent of changes in the acidity of arterial blood. The low hydrogen ion concentration in the hepatic venous blood suggests that the liver may continuously remove lactic acid from the blood and liberate free base. The variations in acidity after the administration of sodium cyanide suggest that this activity of the liver is augmented during periods of impaired oxidation.

The Thebesian Vessels and the Blood Supply to the Heart.

OBSERVATIONS made by G. Stella (*Journal of Physiology*, September, 1931) throw doubt on the existence of large direct communications between the Thebesian system of veins and the coronary arteries. Such an arteriovenous anastomosis has been described by Wearne and would allow the Thebesian vessels to play no mean part in the maintenance of the coronary blood flow in the event of coronary occlusion. Wearne himself, however, regards these communications as a by-pass which prevents the flow of blood through the coronary capillaries during part of the cardiac cycle. Using the heart-lung preparation, Stella found that when the flow of blood from the aorta into the coronary system was prevented and the pressure in the coronary arteries lowered to zero, no blood passed into them from the ventricles, though the intraventricular pressure and cardiac output were varied considerably. The same negative result was obtained after the administration of vasodilator drugs. The author states that the absence of ingress of blood from the ventricles with a diastolic pressure (presumably within the ventricles, though this is not specifically stated) of twenty cubic centimetres of water makes it difficult to accept the claims of Wearne for large connecting channels. The existing communications must impose a high resistance to the flow of blood. It was further shown that, even during systole, no blood passes by way of the Thebesian veins into the coronary veins. The existence of anastomoses between these two venous systems has long been recognized and such an observation can mean only that during systole blood cannot flow from the ventricles into the Thebesian veins. In the event of sudden coronary occlusion the heart could receive blood from the ventricles directly only in diastole and in the absence of arterio-Thebesian anastomoses of low resistance only to a very limited extent. Stella was able to confirm the observation of Wiggers that drugs introduced into the cavity of the ventricle produced the same effect as when introduced in smaller doses into the artificially perfused coronary arteries. Wiggers had concluded from this observation that the drugs reached the cardiac capillaries by way of the Thebesian vessels, but Stella found that application of the drugs to the external surface of the heart was equally effective.

Relation of Gastric Function to the Chemical Composition of the Blood.

To what extent the gastric acidity and the emptying time of the stomach depend upon alterations in the hydrogen ion concentration and bicarbonate content of the blood has been investigated by F. L. Apperly and M. G. Crabtree (*Journal of Physiology*, December, 1931). Variations in the chemical constitution of the blood were brought about by the following procedures: (i) Ingestion of ammonium chloride caused a fall in blood pH with a low plasma bicarbonate; (ii) breathing 3% or 4% carbon dioxide produced a fall in the pH of the blood with a high plasma bicarbonate; (iii) immersion of the body in a hot bath resulted in a rise of blood pH with a low plasma bicarbonate; (iv) administration of sodium acetate gave rise to an increase of the pH of the blood and a high bicarbonate content of the plasma. Under these conditions it was found that an increase of the plasma bicarbonate, however produced, was accompanied by a high acidity in the test meals. There was no direct relationship between the reaction of the blood and the acidity of the gastric contents. On the other hand, the rate of emptying of the stomach depends upon the hydrogen ion concentration of the blood. A fall of the blood pH is associated with an increased emptying time. The total amount of hydrochloric acid secreted by the stomach appears to be determined by the carbon dioxide physically dissolved in the plasma.

Variations in the Acidity of the Gastric Juice During Secretion.

C. BOLTON AND G. W. GOODHART (*Journal of Physiology*, October, 1931) have investigated the gastric secretion resulting from the injection of pilocarpine in cats. The time relations of this secretion are similar to those of the secretion resulting from the ingestion of food. Total chloride percentage is almost constant throughout the period of secretory activity. As the secretion is beginning, the acidity is considerably below the average figure and the neutral chloride is in excess of the average. After this initial phase the acidity remains constant, showing only a slight fall as the secretion is stopping in about half the animals examined. The extent of this fall is only about one-third of that reduction below average acidity shown during the early stages of secretion. There is a corresponding slight rise in the neutral chloride. There is no evidence of the formation of considerable quantities of a neutral diluting juice, as suggested by Maclean. Even when the gastric juice is being formed very slowly during the later phases of secretion, its acidity is high. If any substantial reduction in acidity occurs, it is accompanied by a fall in the percentage of total chloride, indicating dilution by fluid poor in chloride—the gastric mucus. This mucus is secreted at varying rates during the secretion of gastric juice and is most evident at the end of the secretory period. It is alkaline in reaction and contains from 0·28% to 0·36% of inorganic chloride. The effects of mucus upon gastric acidity can be of significance only when small quantities of gastric juice are present. There is no great reduction in acidity until secretion of gastric juice has ceased; then there is a rapid development of alkalinity. The gastric secretion continues with unabated activity even when the acid juice is allowed to accumulate. This indicates that the presence of an acid fluid in the stomach does not inhibit the formation of gastric juice.

BIOLOGICAL CHEMISTRY.

Glycogen and Water Storage in the Liver.

EDWARD M. BRIDGE AND E. M. BRIDGES (*Journal of Biological Chemistry*, September, 1931) discuss relationship between water storage in the body and the metabolism of carbohydrate foods. The authors subjected rabbits to such dietary measures as are known to affect the glycogen and water reserves of the body. At the end of the dietary period the animals were killed, the livers removed immediately and weighed. Samples were taken for the analysis of glycogen, water, total nitrogen and ether extractives. Examination of the data obtained showed that alterations in the percentage of glycogen in the liver were offset by changes in one or other of the other components, especially proteins. The total glycogen and water of the liver per unit of animal weight bore no relationship to each other. These findings do not substantiate the frequently quoted statement that with every gramme of glycogen three grammes of water are also stored in the body. In explanation of the shifts in body water which result from

carbohydrate in the diet, the authors suggest that the mechanism is more likely to be found in the metabolism of fats rather than of carbohydrate.

Carotene in Lettuce.

H. S. OLCOVICH AND H. A. MATTILL (*Journal of Biological Chemistry*, April, 1931) have recorded observations on the properties of carotene obtained from the unsaponifiable lipids of lettuce. The solubility of this carotene and its colour reactions were similar to those reported for carotene from other sources. Whatever the external form, the carotene crystals were found to be hexagonal. Exposure of carotene crystals in the laboratory caused them to lose their colour. This bleached carotene is called achroocarotene and has no physiological activity as vitamin *A*. This decolorization of the crystals is shown not to be due to oxidation. Carotene solutions were bleached by heat, by ultra-violet light and by the presence of autooxidizable fats. The presence of hydroquinone was found to delay the bleaching of carotene solutions for a variable time and to protect ethyl laurate solutions of carotene apparently for an indefinite period and without interfering with its physiological properties. In autooxidizable mixtures carotene was shown to be an active prooxidant and this property is unique in a hydrocarbon. This characteristic is found to a smaller extent in achroocarotene. Whatever the change is which occurs when carotene is transformed into vitamin *A* in the animal body and is decolorized, that portion of the molecule which is concerned in its physiological action is left intact. The physiological activity of the carotene as vitamin *A* was determined by the curative method. Under widely different conditions the growth induced by feeding carotene seemed to be directly proportional to the amount given; 0·005 of a milligramme permitted an increment of three to five grammes in the weight of rats deprived of vitamin *A*.

Hæmoglobin Regeneration and Reproduction.

H. L. KEIL AND VICTOR E. NELSON (*Journal of Biological Chemistry*, September, 1931) have presented further evidence for the positive effect of copper on hæmoglobin building. Nutritional anæmia was readily produced in rats on a whole milk diet, and it was found that pure iron in the form of ferric chloride, when added to milk collected in glass, does not cause regeneration of the hæmoglobin. Some experiments were also performed with market milk and ferric chloride, and regeneration of hæmoglobin took place. The authors considered that two factors played a part in the discrepancy of these results, namely, coprophagy and the copper content of the milk. The copper content of the market milk was higher than that of the milk especially collected in glass vessels. Salts of vanadium, titanium, manganese, nickel, arsenic, germanium, zinc, chromium, cobalt, tin and mercury failed to stimulate regeneration of hæmoglobin when added to milk collected in glass and supplemented with pure iron as ferric chloride. Since copper exists as a monovalent and divalent element, it was thought that other elements which occur in several states of valency might show the same properties of hæmoglobin regeneration, but such was not the case. Copper was the only element tested which had a positive effect on hæmoglobin building. The authors found that reproduction took place on a diet of milk, iron and copper, in contrast to the results obtained by previous investigators. Animals on a whole milk diet and also those on whole milk and ferric chloride showed a change in the colour of the coat. Black or black-hooded animals replaced the black colour with a silvery grey, and grey-coated animals changed to a buff or a silvery grey with a yellowish tint. These changes occurred in about eight weeks, and the addition of copper to the diet was found to restore the original colour of the coat in about two months' time.

Hypocalcæmia Following Experimental Hyperparathyreoidism.

AARON BODANSKY AND HENRY L. JAFFE (*Journal of Biological Chemistry*, October, 1931) observed that hypocalcæmia appeared with seeming regularity after prolonged parathormone treatment of guinea-pigs which were receiving their regular diet and were therefore on an adequate calcium intake. Three guinea-pigs were injected every day with parathormone doses increasing gradually from one to twenty units. Twenty units were administered for the last seventy to ninety days of the experiment. Serum calcium and phosphorus were determined first after twenty units had been given every day for nine to twelve weeks and twenty-four hours after the last injection. Injections were continued for two days, and five days later the experiments were terminated and the serum calcium and phosphorus content was again determined. In another group of guinea-pigs large intermittent doses of parathormone were employed. Two young guinea-pigs were injected with doses gradually increasing from sixty to one hundred and forty units at intervals of about nine days. The duration of the experiment was 115 days. Blood was taken near the termination of the experiment thirteen days after an injection of 140 units and again ten days later. An adult female was given eight injections of 200 units each at intervals of ten days. Blood was drawn for analysis thirteen days after the last injection. Two more injections were administered and the experiment was terminated, the serum calcium and phosphorus content being determined four days after the last injection. Data obtained showed fairly consistent development of hypocalcæmia after a long course of treatment with parathormone with some variability in the degree of hypocalcæmia and the time of its occurrence. Accompanying the hypocalcæmia was a rise of the serum phosphorus after the discontinuance of the daily administration of parathormone and a relative fall after the intermittent administration. The authors suggest that the hypocalcæmia is probably due to rapid deposition of calcium in the previously depleted bones, associated with changes in the phosphorus balance. They also suggest that a temporary hypofunction of the parathyreoid glands may have been caused by the prolonged parathormone treatment. Immediately after the termination of experimental hyperparathyreoidism the hypofunction of the parathyreoid glands contributes to the production of the complex characteristic of the period of recovery — hypocalcæmia, hyperphosphatæmia and a positive calcium and phosphorus balance. The same explanations are suggested for the analogous developments following the removal of parathyreoid adenomata in *osteitis fibrosa cystica*.

The Metabolism of Eskimos.

PETER HEINBECKER (*The Journal of Biological Chemistry*, October, 1931) has continued his studies on the metabolism of Eskimos. He has repeated his observation on the degree of ketosis developed by Eskimos during a fasting period and has secured additional data on respiratory metabolism. Four Eskimos were used for the fasting experiments. The subjects were under close supervision and were found most cooperative. These subjects were again found to develop a very mild degree of ketosis during the period of fasting. A pregnant lactating Eskimo excreted a much larger amount of acetone bodies, less, however, than would be anticipated from a white subject under similar circumstances. Quantitative urine analyses for total nitrogen, acetone bodies, ammonia, albumin, fermentable and non-fermentable reducing substances and acidity were made during the fasting period and for each of the first three days of the fast daily basal metabolism and respiratory quotient determinations were made. The basal metabolism of Eskimos living on a mixed diet was found similar to that of persons living on such a diet in temperate zones, but during the fasting periods the respiratory quotients obtained were very low. Because of the small degree of ketosis and the low respiratory quotients during fasting, the author concludes that Eskimos are able to oxidize fats more completely than ordinary persons and that respiratory quotients below 0·7 may or may not be taken to indicate the existence of some form of intermediary metabolism, such as the conversion of protein or fat to carbohydrate, depending on the viewpoint of the interpreter.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Shire Hall, Camperdown, on October 3, 1931, DR. VICTOR HURLEY, the President, in the chair.

Problems of Abdominal Disease.

DR. H. I. HOLMES read a paper entitled: "Remarks on Some Abdominal Problems, Based on Clinical Experience" (see page 391).

DR. VICTOR HURLEY, in opening the discussion, said that it was sometimes stated that the results and mortality rate of operations for acute appendicitis had improved. This statement, however, was disproved by statistics in Victoria and England and Wales even in the last ten years, both in regard to the total number of deaths and the deaths per million of the population. The mortality seemed to occur chiefly in those cases in which operation was not performed during the first twenty-four or forty-eight hours. A recent analysis of the Melbourne Hospital records showed that, when operation was performed within the first twenty-four hours, the mortality was from 0·5% to 1·0%. When operation was delayed until after the third day, it rose to about 6% and increased with each day's delay to the seventh day, at which point there was again a fall. Dr. Hurley considered that if results were to be improved, an attempt should be made to get a clear idea as to the causation of the early symptoms and signs. Pain was usually generalized at first, and later became localized in the right iliac fossa. In severe cases which later went on to perforation, the pain at first was of the obstructive type, splanchnic in origin, and not connected with the parietal peritoneum; and there was no rise of temperature or pulse rate. A careful history of the mode of onset of the pain and an abdominal examination were of more diagnostic value than the presence or absence of rise in temperature or pulse rate. Sherren had taught that in the early stage of appendicitis, when distension of the appendix was pronounced, a cutaneous area of hyperæsthesia occurred below McBurney's point, just above Poupart's ligament, but he (Dr. Hurley) had not found this sign very helpful. The appendix might, of course, occupy various positions, and in one case he had seen recently, the patient, a man, had had abdominal pain and pain in the perineum. A rectal examination had been made and an inflamed appendix felt in the pelvis.

The rigidity and tenderness of the abdominal wall usually indicated fairly accurately the site of the inflamed appendix, though there were occasional exceptions.

Dr. Hurley went on to say that the delayed treatment (withholding operation when the patient was first seen between the third and sixth day of the illness, in the hope that the inflammation would subside) was not the practice at the Melbourne Hospital, where operation was advised whenever acute appendicitis was diagnosed. In doubtful cases rigidity was the most reliable single sign of the presence of an acute inflammatory condition needing operation. On the other hand, absence of rigidity did not necessarily indicate the absence of a surgical condition. It was helpful to palpate the right and left iliac fossæ alternately with the fingers of one hand placed gently on the abdomen.

For the incision Dr. Hurley preferred McBurney's method, with an extension of the wound up or down, if necessary. It had been said, probably correctly, that the less one saw of the general abdominal cavity the better, and he preferred the wound to be well out in the right flank. Discussing the indications for drainage, Dr. Hurley said that after the occurrence of perforation, especially in the obstructive type of appendicitis, when the contained matter was generally more highly infective than in the inflammatory type, drainage was usually required. He usually shortened the tube on the third day, and thereafter shortened it by about one-half to three-quarters of an inch daily.

It was, of course, well known that in many such cases the patient would recover without drainage or further incident, but it was very difficult to be sure at operation which of them would be likely to do so. Each surgeon, as his experience increased, developed his own indications as to when drainage should be employed.

DR. JOHN LE M. KNEEBONE, in discussing the diagnosis of appendicitis, said that unless the possibility of pelvic appendicitis was kept constantly in mind in all cases of abdominal pain in childhood, sooner or later it would be missed, perhaps with disastrous results. The diagnosis was far from easy, even if the disease was suspected, as there was often no abdominal tenderness or rigidity until late in its course, and if the child was difficult to manage, rectal examination was often not conclusive in the early stages. Valuable information was often obtained by examination of young children under very light anæsthesia. Just enough anæsthesia to abolish resistance was required, when involuntary rigidity or even the presence of a mass could be determined. In the absence of a history of a typical acute attack of appendicitis, or positive X ray evidence, it was generally unsafe to diagnose chronic appendicitis. In discussing the technique of operation, Dr. Kneebone said that in typical acute appendicitis of children or male subjects during the first forty-eight hours after the onset of symptoms, he had found the gridiron incision very satisfactory. When operating on women, and in other cases in which difficulties might be expected, he preferred Battle's incision. He had never regretted using this incision, but had often regretted using a muscle-splitting incision, though it was possible to enlarge the latter. He had made it a practice only to drain the abdomen in the following circumstances: (i) In the presence of frank general or pelvic peritonitis; (ii) when there was oozing due to imperfect hæmostasis; (iii) when the retroperitoneal tissues had been opened up for the purpose of digging out a retrocaecal or adherent paracolic appendix. The retroperitoneal tissues could not deal with an infection in the same way as could the peritoneum itself. The intraperitoneal drain was always inserted through a separate stab incision, whenever possible lateral to the caecum, in order to avoid passing among coils of bowel. The abdominal wound was sterilized as well as possible with flavine after the peritoneum had been closed; a rubber glove drain was inserted down to the peritoneum. He had not seen a main wound break down when this procedure had been adopted.

Discussing complications, Dr. Kneebone went on to say that general peritonitis was rarely seen nowadays, and in over one thousand cases of appendicitis he had seen it occur only three times; in these three instances he believed it was due to surgical intervention when delayed treatment should have been used. Obstruction of a serious degree was not common; it had occurred six times in a series of one thousand consecutive cases. There was often considerable difficulty in determining whether the obstruction was due to paralytic ileus or true intestinal obstruction. When the symptoms of obstruction came on soon after operation, it was usually due to paralytic ileus. In extreme cases of the latter, in which there was no response to rest, morphine and gas gangrene serum, jejunostomy was sometimes a life-saving measure, as it had been to two of his own patients. In a third case, in which jejunostomy had been performed, the condition failed to respond, although no mechanical obstruction could be found. In the other three cases the obstruction had been mechanical and of a complicated nature, and in each the condition had been permanently relieved by lateral anastomosis. He believed that this was a much better method than attempting to break down numerous adhesions, though there was a risk that the excluded portion might include a considerable portion of the small intestine and lead to inanition.

DR. BALCOMBE QUICK congratulated Dr. Holmes on his paper, and agreed with him that it was important to ascertain as accurately as possible the position of the appendix before operation. It was more helpful to locate the point of most acute tenderness than that of rigidity. A badly placed incision involved a danger of having to operate at a disadvantage. Many years ago he had

learned a stratagem from Dr. Buchanan. It was possible to split the external oblique muscle in enlarging the wound upwards and to split the internal oblique and transversalis muscles again, ignoring the original split in them.

It could be laid down arbitrarily that an inflamed appendix should not be removed after a lapse of seven days from the onset of illness. Before this it should be removed. Murphy had said that every appendiceal abscess should be opened through the general peritoneal cavity. When the appendix was being removed, the inflamed, thickened and congested omentum surrounding it should also be removed. Dr. Quick agreed with Dr. Kneebone that the resistance to infection of the abdominal parietes was less than that of the peritoneum, but infection seldom occurred if the wound were fomented with a weak solution of carbolic acid after the patient's return to the ward.

DR. KEITH HALLAM said that radiography was useless in acute appendicitis, but was useful in subacute and chronic appendicitis, because by its means the location of the appendix could be accurately determined, especially after the ingestion of a concentrated solution of magnesium sulphate about four or five hours subsequent to the swallowing of the barium. The position, tenderness and mobility of the appendix could be clearly estimated.

DR. W. A. HAILES agreed with Dr. Quick that most help in locating the appendix was gained by finding the point of maximum tenderness. He agreed that patients suffering from hæmaturia associated with injury nearly all got well without operation. He had removed one kidney from a patient suffering from hæmaturia, and had seen perinephric abscess supervene in two other cases.

DR. S. C. FITZPATRICK thanked Dr. Holmes for his excellent paper. He considered that in the solution of some abdominal problems there was need for more conservative gynæcology. He stressed the value of myomectomy, salpingostomy and tubal inflation, before and after operation. Hysterectomy was ablative and final, myomectomy gave hopeful results in carefully selected cases. Though figures showed slightly greater mortality from myomectomy, yet to his knowledge, many patients desirous of bearing children were willing to take the necessary risks. For example, a *nullipara* who had been married for eleven years, became pregnant within two years of the removal of twenty-two fibroids. Tubal inflation and salpingostomy also had a much wider field of usefulness than had been realized. Thus, a woman who had not conceived for eight years after the birth of her only baby, had been found to have a fimbrial block; she became pregnant during the year following salpingostomy.

Dr. Fitzpatrick went on to say that there were many unusual sites for appendiceal abscesses, thus making diagnosis difficult. He had had two patients in whom an appendiceal abscess had discharged by a sinus through Petit's triangle in the right lumbar region. In one case an abscess had arisen and been incised three times in six months. Careful consideration of the history and X ray examination with a contrast medium in the bowel and in the sinus, had established the diagnosis.

DR. R. G. MCPHEE said that at the Geelong Hospital gas gangrene antiserum had been used in the treatment of patients suffering from intestinal obstruction, apparently with good results.

DR. A. NORMAN MCARTHUR remarked that little had been said on the gynæcological portion of Dr. Holmes's excellent paper.

Dr. Fitzpatrick had mentioned childbirth after myomectomy. He had said that myomectomy carried with it greater danger and greater mortality than hysterectomy. A similar statement had been made by some gynæcologist at a recent Melbourne clinic. In his (Dr. McArthur's) experience there had been no great danger and no mortality from either operation for very many years. The presence of fibroids in a pregnant uterus became serious or not, according to their position. If incarcerated in the pelvis, or in any such situation to block delivery of the fœtus, either myomectomy at once, or Cæsarean section later, was to be decided upon. The two methods must be freely discussed with the patient, particularly if she had still some years of the child-bearing period before her. Myomectomy might be done at any time, the obstructing fibroid being removed first under careful hæmostasis; but the patient must be warned of the possibility of abortion; though Dr. McArthur thought the risk was slight. He recalled an instance in which he had removed five fairly large fibroids at the fifth month of pregnancy. The obstructing fibroid, down in the posterior wall of the cervico-uterine junction, had been so deeply placed that the membranes had been exposed. The patient had been delivered normally of a healthy child. The patient might be told she could carry on till nearly term and the child delivered by Cæsarean section. When a woman was not pregnant and was extremely desirous of a child, and was young, myomectomy was certainly the proper recommendation. But the patient should be told that ultimately it might be necessary to remove her uterus. He had removed a large fibroid from a young woman extremely desirous of a child; when he had enucleated the fibroid there had appeared to be left only scraps of uterus here and there. The patient had subsequently become pregnant and refused advice to have the child delivered by Cæsarean section. She had gone to an institution where, during the first expulsive effort of labour, the uterus had split. She had lost her uterus and her child, and had very nearly lost her life. Cæsarean section would have saved the child and the mother and, probably, the uterus. As there were such tragic possibilities, there should be a close cooperation between the gynæcologist who operated before pregnancy and the obstetrician who later had to deliver the woman. A consultation even by correspondence would have saved the tragedy of which Dr. Fitzpatrick had spoken.

Dr. M. A. STEWART said that the difficulties of diagnosis were accentuated in abdominal disease of children. There was a tendency for the child's symptoms to be more obvious than the signs, and it was possible for the abdomen to be nearly full of pus from a ruptured appendiceal abscess, without any recognizable rigidity. He thought hæmaturia due to injury in children also should be treated on expectant lines, as the peritoneum was seldom ruptured.

Dr. Holmes, in reply, said that in delayed treatment, unless the appendix was removed, subphrenic, perinephric and pelvic abscesses were more likely to develop.

Sprengel's Deformity.

DR. J. MORLET, on behalf of DR. A. H. BARRETT, showed a female patient, aged one year, who was affected with Sprengel's deformity of the right scapula. The bone was fixed in an elevated position, and as a result of mechanical obstruction, there was limitation in movement of the right arm and the neck. The apex beat of this patient's heart was 3·75 centimetres (one and a half inches) to the right of the middle line of the sternum. The heart sounds were normal, and there were no apparent symptoms. X ray examination had revealed the atypical appearance of the heart shadow.

Cervical Rib.

Dr. Morlet also showed a female child, aged six years, who had a cervical rib on the right side, discovered when a fracture of the clavicle had been sustained. A bony prominence had been felt above and behind the site of fracture. The diagnosis had been confirmed by radiological examination.

Cerebral Aneurysm.

DR. E. C. VARLEY showed a male patient, aged thirty-nine years, who had always been healthy, save for the effects of a shrapnel wound of the skull. Several pieces of shrapnel remained embedded in the skull. During the previous twelve months he had been affected with transitory headaches, occurring after severe exertion. On May 21, 1931, he had become affected with headache while pumping a motor tire with a hand pump. The headache had become rapidly worse. When seen two hours later, he had been suffering from severe headache. There had been slight stiffness of the neck, and Kernig's sign had been present. During succeeding days the headache had continued to be severe, and diplopia had developed. Fluid obtained by lumbar puncture on May 23 had contained

much blood. On May 26 the cerebro-spinal fluid was blood-stained. By May 27 diplopia had disappeared, but headache had not been relieved. Frequent injections of morphine had been required. By June 1 the headache had practically vanished, and the stiffness of the neck and Kernig's sign had been lost. On June 5 the patient had felt quite well. From that time onward he had had no recurrence of headache, and had felt perfectly well.

Osteo-Arthritis.

DR. S. C. FITZPATRICK showed a female patient, aged forty-six years, who complained of stiffness and aching in both hip joints. Twenty-one years previously she had injured her left knee, and seven years previously her left hip; on both occasions the injury had been the result of a fall. Two years previously she had injured her right hip. For some years, during the summer, she had suffered from boils and an occasional carbuncle. The menopause had occurred when she was forty-three years of age. Radiological examination had revealed osteo-arthritis of both hip joints, more pronounced in the left. In the left hip joint there was a *protrusio acetabuli* and remarkable density of the bone at the intrapelvic arching of the acetabular floor. Dr. Fitzpatrick remarked that Kohler was of the opinion that the causes of the condition were diverse and that there was an acute form, usually due to gonorrhœa, and a chronic form of gradual intrapelvic acetabular displacement, most likely a particular kind of *arthritis deformans*.

Pseudo-Coxalgia in Late Stage.

Dr. Fitzpatrick also showed a male patient, aged twenty-eight years, a baker, who complained of pain and stiffness in both hip joints, worse in the right. He had apparently been delivered by a breech presentation; he had walked at the age of ten months, but never properly, and had never been able to play games well. Examination of the hip joints revealed that the great trochanters were palpable higher than normal, nearer the level of the anterior superior iliac spine. On the right side the trochanter was five centimetres (two inches), on the left side, 7·5 centimetres (three inches) above Nélaton's line. Schoemaker's line fell below the navel on each side. Abduction was very limited in both hip joints; internal rotation and extension were reduced; flexion was good, but more limited on the right. X ray examination revealed that both femoral heads were mushroom shaped, the left flatter than the right. There were areas of osteoporosis with one area of increased density in the right femoral head. The necks had practically disappeared, so that the tips of the great trochanters were almost on the same level as the upper border of the acetabula. The pathological state on the left side appeared to be more advanced than that on the right. Dr. Fitzpatrick remarked that he showed the patient because pseudo-coxalgia was a clinical condition of obscure ætiology, unsatisfactory treatment, and no established pathology. The prognosis in any given case was uncertain, and it was remarkable that such comparatively good function was possible despite the advanced structural alterations.

Hydatid of the Lung.

DR. J. LE M. KNEEBONE showed a male patient, aged thirty-one years, who had been treated in Coleraine Hospital in October, 1929, for "fluid around the right lung". He stated he had left hospital feeling fairly well, but had suffered from a tight feeling in the chest from that time onward. Four days before being examined on November 15, 1929, he had become affected with vomiting and pains in the joints. He had been operated on for empyema of the left pleural cavity in 1928. Examination had revealed evidence of a hydropneumothorax on the right side. The Casoni reaction had been present, and the blood had reacted to the complement fixation test for hydatid. During the succeeding three months there had been a good deal of thick sputum, and several collapsed cysts had been coughed up. On April 13, 1930, he had been seized with a severe bout of coughing, and generalized pains and pyrexia had ensued. On April 30, 1930, thoracotomy had been performed on the right side, and hydatid *débris* and pus had been removed from a large cavity with firm walls. Following drainage, the fever had subsided and the opening had closed in three weeks, although the lung had not expanded. Later, the patient had undertaken heavy work and had felt well. In April, 1931, he had suffered from slight hæmoptysis. In July, 1931, he had become affected with a cold, which had caused reinfection of the cavity. He had not been so well afterwards.

Dr. Kneebone remarked that the patient was now suffering from residual infection in a thick-walled chronic empyema cavity; it was probable that the lung would never fully expand.

Goître.

Dr. Kneebone's second patient was a male, aged twenty-five years, who had suffered from enlargement of the thyreoid gland for the previous twelve months. The swelling had been gradually increasing. The eyes had become slightly more prominent. There had been no loss of weight, and the patient was eating and sleeping well. He suffered no disability, save that he tired easily and was unable to do hard work. There was no dryness of the skin, but there was a tendency for the hair to fall out. There was no apparent cardio-vascular involvement. No infective focus was discoverable. No improvement had resulted from treatment by rest and the administration of Lugol's solution; but the gland had diminished somewhat in size after the administration of thyreoid extract.

Intestinal Obstruction.

DR. H. I. HOLMES showed a female patient, aged forty-one years, who had first been seen by him in July, 1927. At that time she had suffered from vomiting, pain in the lower part of the abdomen, and increasing abdominal distension for a period of three days. Her rectal temperature had not been above 37·8° C. (100° F.). Two days later operation had been performed and a pelvic abscess opened and drained. There had been no obvious cause for the abscess. The appendix, which had been thickened and firmly bound down, had not been removed. The general condition had improved after operation, but symptoms of intestinal obstruction had developed, and on the fourteenth day after operation the abdomen had again been opened; but, owing to the matted condition of the intestine and the gravity of the illness, ileostomy only had been performed. Ten days later obstructive symptoms had again become manifest, necessitating another operation, at which a loop of the distended ileum had been anastomosed to the caecum. After this the condition had improved, but fæces had continued to pass through the ileostomy opening. An attempt to stop this by suture had failed. The bowels had acted normally. Six weeks after the performance of anastomosis another attempt had been made to close the ileostomy by dissection and suture; but after the operation peristaltic pains had again come on and the sutures had given way. At the end of three months the bowel had been dissected free, the kinked portion mobilized, and about one foot resected, and an end-to-end anastomosis performed. In spite of some wound suppuration, the patient had made steady progress. At one of the operations a small piece of bone had been recovered from the abdominal contents. This had probably been the origin of the trouble.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Heighway, Freida Ruth, M.B., B.S., 1930 (Univ. Sydney), Royal North Shore Hospital, St. Leonards.

Anderson, Edley Hector, M.B., B.S., 1930 (Univ. Sydney), Gloucester.

Callose, Angelo, M.B., B.S., 1929 (Univ. Sydney), 129, Hillcrest Avenue, Gladesville.

Mahon, Thomas Patrick, M.B., B.S., 1928 (Univ. Sydney), Cowra.

NOTICE.

THE Council of the Queensland Branch of the British Medical Association has forwarded a notice to the effect that Dr. Kenneth Wilson is now Honorary Secretary of the Branch, and Dr. Ellis Murphy Assistant Honorary Secretary. Dr. B. L. W. Clarke has resigned from the position of Honorary Secretary, but is still a member of the Council.

Medico-Legal.

THE NEW SOUTH WALES MEDICAL BOARD.

AN inquiry by the New South Wales Medical Board into alleged unprofessional conduct by Dr. Robert Vivian Storer was held in the Executive Council Chamber, Chief Secretary's Department, Sydney, on January 18, 19, 20, 21, 22 and February 2, 4, 5, 8, 1932.

Dr. T. Storie Dixson, President, presided, and with him were the following members of the Board: Dr. E. J. Jenkins, Dr. W. H. Crago, Dr. G. H. Abbott, Dr. J. A. Dick, Dr. W. G. Armstrong, Dr. A. Murray Will.

Mr. Barry, of the Crown Law Department, appeared for the Crown.

Mr. W. J. Curtis, K.C., and Mr. W. S. Sheldon, instructed by Messrs. Mark Mitchell and Nelson, appeared for Dr. Storer.

Mr. A. R. J. Watt, K.C., and Mr. Norman McGhie, instructed by Messrs. Norton, Smith and Company, asked leave to appear for Messrs. Cleveson, Jones and Nicholas. Mr. Curtis objected to this application, and after argument the Board decided to proceed with the charge of Mr. Francis, and that Messrs. Watt and McGhie would have no right to examine or cross-examine, but could be present to take objections. Mr. Watt withdrew, Mr. McGhie remained.

The charge laid by Mr. Francis was that Dr. Storer had been guilty of infamous conduct in a professional sense in that:

(1) When consulted professionally by certain persons, to wit, Clement Leopold Cleveson, Percy Jones and William Henry Nicholas, he informed the said persons that they were suffering from a venereal disease, to wit, gonorrhœa, when the said persons were not suffering from gonorrhœa, as he well knew.

(2) That he did improperly seek to attract professional business by representing to the said Percy Jones and William Henry Nicholas that they required his special private treatment, and that they could not obtain proper treatment in any of the public clinics, by means of which representation he did attempt to obtain from the said Percy Jones and William Henry Nicholas various large sums of money.

(3) That he did improperly seek to attract professional business and to obtain money by means of the publication and sale of a certain book called "Sex and Disease", and the sale of a certain preparation called "San-o-sex".

CLEMENT LEOPOLD CLEVESON, journalist, employed by Smith's Newspapers, gave evidence that on October 17 he was examined by Dr. Finckh and a few days later received a certificate, on which date he consulted Dr. Storer. From Dr. Storer he went immediately to Dr. Goldstein, and after treatment by the latter, to Dr. Gibson. (Witness's account of his consultations with and treatment by these doctors corresponds with the accounts of the doctors themselves.) He told Dr. Storer that his name was McClelland, that he had been with a woman, but he had never been with a woman nor had he had a discharge. He was twenty-one years of age, and single.

PERCY JONES, circulation inspector, employed by Smith's Newspapers, stated that on October 26 he was examined by Dr. Goldstein. Next day he consulted Dr. Storer and saw him again the following day. (Witness's evidence of these occasions is substantially that given by Dr. Storer, save that he denies having told the doctor that he was suffering from a gleet, and alleges that the doctor said: "My fees are three guineas a visit. You could go to a clinic and be treated, but the treatment is not satisfactory, because the attendants do so much of it that they do not care whether they cure you or not.") A week or ten days later he was examined by Dr. Leahy and Dr. Tebbutt. He was forty-one years of age, and married.

WILLIAM HENRY NICHOLAS, journalist, employed by Smith's Newspapers, testified that on October 23 he visited Dr. Leahy, who gave him a note to Dr. Tebbutt. That day he was examined by Dr. Tebbutt. On October 27 he saw Dr. Storer. (Witness's account is in accordance with that of Dr. Storer, save that he alleges that the doctor said he saw gonococci germs on a slide prepared from witness and that the doctor said: "You can go to a public clinic, but I would not advise that, because the most they can do is to give you a wash-out with Condy's crystals, but I can treat you.") He was thirty-eight years old, and married. He gave the name of Jamieson to Dr. Storer.

ALEXANDER GOLDSTEIN, medical practitioner, stated that about noon on October 20 he saw Cleveson, who had come direct from Dr. Storer. His penis was stained blue; there was no discharge. Witness said: "It's no use my examining you now if you have just had treatment. Come back at five." At five he had an acute discharge. He said he had never been with a woman in his life and had never before had a discharge. The discharge was cultured, slides taken, and no gonococci were found. Witness thought the discharge might be due to a chemical urethritis and gave him no treatment whatever, just observed him, examining him twice a day. In three or four days it had quite cleared up. It had not been witness's experience that acute gonorrhœa could be aborted on one irrigation. He examined Percy Jones on October 26 and gave him a certificate that he could find no trace of venereal disease.

ALFRED EDMUND FINCKH, medical practitioner, gave evidence that on October 17 he examined Cleveson and gave him a report that he did not show any evidence of venereal disease. He received cultures from Dr. Goldstein and reported that they showed staphylococci, streptococci in large chains, and some Gram-negative cocci. In the case of Jones, witness had done some of the slides, the culture and the blood tests, and could say that he was not suffering from any kind of venereal disease.

NORMAN MAXWELL GIBSON, medical practitioner, stated that he examined Cleveson on October 30 and gave him a certificate that there was no evidence of gonorrhœa. If a person had been found to be suffering from early or acute gonorrhœa on October 20 and there had been one irrigation, he would still be suffering from gonorrhœa on the 27th, although this would depend on how long after exposure the irrigation was given. Where there was a weakly positive reaction, but all the other signs were negative, a weakly positive test was not diagnostic.

ARTHUR HAMILTON TEBBUTT, medical practitioner, testified that he gave a report in the case of Percy Jones that on examination he could not see any gonococci. He examined Nicholas and gave a report that there was no evidence of gonococci. The blood gave a doubtful complement fixation test, so the test was repeated and a weakly positive reaction was obtained. As to this a further report stated: "He denies infection in recent years, so I am at a loss to explain it, but in view of the negative bacteriological results I do not personally see any objection to his marriage."

HENRY GEORGE LEAHY, medical practitioner, gave evidence that he examined Percy Jones on November 14. He told him to go to Dr. Tebbutt and got a report from Dr. Tebbutt. On his own examination and this report witness was quite satisfied there was nothing wrong with Jones. He examined Nicholas on October 23, sent him to Dr. Tebbutt, got two reports from Dr. Tebbutt and certified that Nicholas was not suffering from any venereal disease.

CHARLES VICTOR FRANCIS, complainant, stated that in November the words "Laboratory of Venereal Research" were at the bottom of Dr. Storer's name-plate. They had

since been removed. In December witness purchased at Hallam's a tube of "San-o-Sex". On the carton were the words: "A Product of the Laboratory of Venereal Research, Sydney", and there was a folder with an advertisement for "Sex and Disease", a book by "A Macquarie Street Specialist". On the folder of a tube found in the doctor's rooms were the words: "Robert V. Storer, M.R.C.S., L.R.C.P." instead of "A Macquarie Street Specialist". Both folders referred to Box 3688, G.P.O. Copies of "Sex and Disease" were bought at different places in the city, and in one copy was a slip referring to "San-o-Sex", the advertisement of "Sex and Disease", and the name "Robert Storer". The book had been advertised in *The Sydney Morning Herald* and *Honi Soit*. In the latter publication the words "Robert Storer" appeared once. "Sex and Disease" contained several references to "San-o-Sex". In Dr. Storer's rooms were numerous copies of "Sex and Disease" bearing his name and tubes of "San-o-Sex" done up as described.

JOHN COOPER BOOTH, medical practitioner, Director of Division of Venereal Disease, Department of Public Health, gave evidence that in the clinics of New South Wales the same treatment is meted out as by a general practitioner. There are more facilities at some of the clinics and at the bigger public ones there is the advantage of an expert. There is also opportunity of research by the Department. The statement that the clinic treatment is not satisfactory because the attendants do so much of it that they do not care whether they cure or not, does not agree with the treatment as he knew it. To give a wash-out with Condy's crystals is the least, not the most, that can be done.

PERCIVAL CHARLES HOLDEN HOMER, medical practitioner, stated that he had been in partnership with Dr. Storer since October, 1931, and they treated most of the patients jointly. He had never found an instance of false diagnosis. On a slide prepared by Dr. Storer in Cleveson's case he saw diplococci which he took for gonococci. From this and the history of the case given by Cleveson to Dr. Storer he was of the opinion that it was a case of incipient gonorrhœa. The statement that he had just passed water would account for no discharge. The injection used by Dr. Storer as an abortive could later produce a discharge that was not gonorrhœa. It would not last more than two or three days. He examined the prostatic fluid in the case of Jones. There were more than the normal number of pus cells, which indicated infection somewhere. It might be gonorrhœa. He examined the urethra and found four or five infected follicles. Cleveson might have had chronic littritis, but witness would have liked to have gone further before making a definite diagnosis. Witness saw the letter written to Miss Henderson, and said it was all right. He examined Nicholas and found a few infected follicles and pus in the prostate. With these signs no medical man should certify the patient to be free from gonorrhœa and fit to marry. The patient refused to have a blood test. If on the fixation test the blood gave a weakly positive reaction with what had been found, there must have been gonococcal infection.

ROBERT VIVIAN STORER stated that there was a firm in Adelaide, "T. G. Storer and Sons, Limited". His father was managing director when witness left Adelaide in 1928 and some of witness's brothers were in the firm. Witness had no association with it. He had notified the Public Health Department of every case of venereal disease he had diagnosed. Of his last 400 patients he had diagnosed 237 as venereal. "Sex and Disease" was first published in April, 1929. It had been favourably received in nearly every medical journal in the world save THE MEDICAL JOURNAL OF AUSTRALIA. Witness had an interview with Dr. Todd, then Secretary of the British Medical Association and a member of the Ethics Committee. Since then no advertisement of the book with his name as author had appeared with his knowledge and approval. When his name appeared in *Honi Soit* a firm was doing the advertising. Witness saw the business manager and said it must be stopped. THE MEDICAL JOURNAL OF AUSTRALIA declined an advertisement and the publishers thereafter advertised in *The Sydney Morning Herald*. Witness never received any complaint from the British Medical Association or Ethics Committee, and if the British Medical Association or the Board were to say that the book must not be advertised at all, witness was quite willing to abide by this decision. His first intimaton that "San-o-Sex" might be misconstrued was when he interviewed Dr. Cooper Booth after the article in *Smith's Weekly*. He therefore instructed his agent that it would not be supplied any further to the public. He never made a penny profit from the product. He had offered it free to the Health Department purely to carry out his ideals as to the prevention of disease. Hallam's would have taken it over, giving him £20 for stock in hand, only they wanted his name on the cartons and he refused consent. Until Dr. Homer joined him the name of the surgery was "Laboratory of Neisserian Research". He and Dr. Homer agreed on the word "Laboratory" within a few weeks of when "San-o-Sex" went off the market. Box 3688 was in the name of T. G. Storer and Sons, Limited. It had been cancelled. He submitted one of the folders with his name on it to Dr. Todd and they were destroyed. Fresh ones were printed. As to the book purchased with the folder in it, it must have been one of a dozen sent out by mistake by his assistant. Dr. Storer then continued: Between 11 and 12 on October 20 I received a telephone call from a public telephone and a man's voice asked: "Are you the doctor who wrote 'Sex and Disease', and I said: "Yes." He said: "I would like to consult you professionally." I said: "Come up straight away. If it is urgent I will see you straight away." I saw him later on in the waiting room. I said: "You are the man that just rang up?" and he said: "Yes", and I took him into my consulting room. I said: "What is your trouble?" He said: "Oh, the usual thing; I think I have gonorrhœa." I said: "Have you been with a woman recently?" He said: "Yes, ten days ago." I said: "Have you any symptoms?" He said: "Yes, I have a slight gumminess and an irritation in my penis." I said: "Have you any pain on passing water?" He said: "Yes, a burning at the tip." I said: "Have you a yellow discharge?" He said: "No, a yellowish white." I said: "Your symptoms are suggestive of gonorrhœa." He said he had had discharge for four days. I examined his penis, there was no inflammation, there was no discharge, there was no redness of the urethra as one would expect to find, there was no œdema, and I said to McClelland that there was no discharge here now, and he said: "Well, doctor, I have just passed water." The fact that he had just passed water would account for the non-finding of discharge, or it might have been a very mild attack and so the symptoms of acute inflammation would not be apparent. I took a smear from the *fossa navicularis* with a platinum loop. I stained it with methylene blue. I looked at the smear under the microscope. There were bunches of staphylococci present. There were some chained streptococci, and apart from these there were also some kidney-shaped diplococci, which I have in my experience always come to regard as gonococci. The patient had told me of a yellowish-white discharge, and on examining this smear I found no pus cells at all. There were no signs of active inflammation round the meatus. I thought possibly it might have been a recurrence of some previous attack, so I examined the prostate to see if there was any evidence of infection there which might account for the signs which I found in order to coincide with the story he told me. I examined the prostatic fluid and it was quite healthy. I came to the conclusion that possibly this man had been mistaken about the yellowish discharge and that he was in what I regard as the incubation period of acute gonorrhœa. I said: "I would like to culture these organisms to make definitely sure of their nature, but that would cost you another £2 2s." He said: "I could not afford that. If you are satisfied that they are gonococci I am willing to accept your opinion." I called Dr. Homer in to ask him his opinion about these organisms, because the finding of them did not seem to coincide with the history he had given me. Dr. Homer agreed with me that they were gonococci, and I said to Dr. Homer: "I think this is a case of acute gonorrhœa in the incubation period, actually before the signs of inflammation have appeared. I think it would be a suitable case for abortive treatment." Dr. Homer agreed with me. There were two alternatives. One, I thought possibly his story might be untrue and he

might be carrying these organisms in the *fossa navicularis* just as diphtheria patients carry diphtheria germs in the throat and show no signs of inflammation; or I thought he had had intercourse—sometimes the incubation period in gonorrhœa is fourteen days or even twenty-one days, and I thought perhaps his immunity might be high and that this was possibly a case of acute gonorrhœa in the incubation period which might be quite early aborted by treatment.

Q.: Questions have been asked whether it is possible for this to be cured with one irrigation. Supposing it is a very early stage of incubation, say, the second or third day, it is possible that even one irrigation might abort? *A.*: I do not think so; after the second day the organisms are sometimes below the surface of the urethra and usually they require a week's treatment.

Q.: In your opinion, at that stage is it a proper course to irrigate? *A.*: Definitely, whether he was a carrier or in the incubation period. I gave him an irrigation, an interior irrigation, with one in 4,000 potassium permanganate solution followed up by an antiseptic aniline dye. During the last few years aniline dyes have come into great vogue in the treatment of gonorrhœa, and methylene blue is a cheap aniline dye. McClelland said: "How long will the treatment take, and what will it cost?" I said: "My fees for this examination are £2 2s., and you should come every day for treatment, and it will cost you £3 3s. a week. It may be as much as £10 10s. in all; it will only take a week or so to rid you of the infection, because, so far as I can see, the condition is at present superficial." He said: "In your opinion, doctor, is it gonorrhœa?" and I said: "Yes, early gonorrhœa." He said: "Well, will you give me a chit to show my uncle, he may not believe me." He said his uncle would be responsible for his fees; I wrote down on the back of the chit; "Early gonorrhœa." He said it did not sound bad enough to have treatment from a specialist, and his uncle would not believe it. I said: "Early gonorrhœa is the incipient stage of acute gonorrhœa" and then I changed "early" to "acute". I told him I regarded it as absolutely important for him to have treatment right away, and I wanted to facilitate as far as I could his having that treatment, because I believed those organisms would have set up active inflammation within a day or two.

MR. CURTIS: *Q.*: He admits that you said: "Well, you had better come back tomorrow, even if you cannot afford to pay for it, come back." *A.*: Yes, that is correct. Next day I received a telephone call. A voice said: "Is that Dr. Storer?" I said: "Yes." He said: "It is McClelland speaking; I won't be able to keep my appointment today. I am speaking from Parramatta and I have to go away to the country forthwith." I said: "Have you had any discharge?" He said: "No." I said: "Maybe the treatment I have given you has aborted your trouble, but if anything develops while you are away you should ring me up immediately; otherwise, call and see me when you come back." If, as a result of my examination, I had obtained the cultural result which Dr. Finckh obtained, I would say almost certainly that those organisms which we saw and recognized as probably gonococci were definitely gonococci. On Tuesday, October 27, Dr. Homer said that a man had been waiting to see me. He said that his name was Percival Jones, that he lived at Nyngan, that his age was forty-one, that he was single; and he said: "I am thinking of getting married. I had gonorrhœa thirteen or fourteen years ago and I want to know definitely whether I am cured." I said: "Have you any symptoms to suggest that you are not right." He said: "I have had a gleet for many years." I said: "Is it very much?" and he said: "No, only a pin point in the mornings." He said that he had been told not to worry about it. I said: "Have those who told you not to worry about it examined you?" He said: "No, I have only been treated by chemists." Dr. Homer then came into the room and I said: "This is a very interesting case. He has had gonorrhœa many years ago and since then has had a gleet, but has never had any tests of cure. We shall give him an examination." I took a urethral smear and in the smear were a few pus cells, some organisms which I recognized as staphylococci. I then expressed his prostatic fluid and in the prostatic fluid were many pus cells and numerous bacteria. I said: "I can't say what these organisms are that we see here. We shall have to do a culture." I examined him with the urethroscope, and having done so I asked Dr. Homer to repeat the examination for me. I saw five or six infected follicles, infected Littré's follicles, and this was confirmed by Dr. Homer. He said: "Yes, he has infected follicles; it seems rather like a chronic gonococcal infection to me." I said: "Yes, they suggest that; we shall do a culture later. Would you take a specimen of his blood now?" Dr. Homer then took some blood from the patient's arm and left the room with it. I said to Jones: "I have found evidence of a persisting infection which may be your old gonorrhœa in a latent form." He said: "After all these years?" I said: "Yes, I have known patients to harbour the gonococcus for as long as fifteen years and then pass on the infection." He said then: "How long will it take to cure?" I said: "I cannot say how long it will take to clear up; I would prefer to defer an opinion until I have watched the progress of your case and received the reports of your examinations." He said then: "I am engaged to be married." I said: "Well, I would defer getting married for at least six months, then, if all your examinations are negative, the condition in your prostate would probably set up a condition of whites in your wife if you married." He asked me how much it would cost. I said: "My fees for this examination are three guineas, and thereafter it would depend on how often you attend." He said: "Well, I am returning to my station in three weeks' time; I have several thousand sheep to look after." I put it to him that perhaps his manager could look after them. He said: "No, I do not think that would be satisfactory, but I could return later, if necessary." I said then: "Well, I will see you four times a week for ten guineas; additional visits would cost you two guineas. You could go to a public clinic if you like, but I do not think you would receive there that specialized and individual treatment which I think your case requires; in fact, in some clinics I know they would not be able to treat your urethra through the urethroscope in the way I think it needs." I made no other comment with regard to the clinic. He said: "All this is going to be very difficult to explain to my *fiancée*; would you give me a letter explaining my condition." I said: "Certainly," and proceeded to write the letter. I handed him a copy of "Sex and Disease", and I said: "There are certain directions as to your personal hygiene I should like you to follow, I have not time to go through them with you now, but they are concisely put in the appendix and you can read them and bring it back tomorrow." Just as he was leaving he said: "I will pay you for this consultation now and come again tomorrow." I gave him a receipt for three guineas. As he was leaving I said: "Do not alarm your *fiancée*, your condition is not serious and will react to appropriate treatment. If you would like me to interview your *fiancée* I would be glad to do so, as I am accustomed to discussing these matters and perhaps could put the position to her better than you yourself could." He said he would return the following day. When I saw him next day he said: "I have seen Miss Henderson; she is very distressed about what you have mentioned in your letter, she thinks I have something more serious than you have disclosed. She thinks I have syphilis, and I have come to get a definite assurance from you it is only the other disease." I scribbled out a note straight away. That is all I saw of Mr. Jones. On the same morning that I saw Jones another man came in later and saw Dr. Homer. Dr. Homer said: "You had better see him, he seems very nervous." I took the man into my room and he gave his name as Jamieson, aged thirty-eight, and single. I said: "What is your trouble?" He said: "I have had a slight discharge in the mornings, not all the time, only occasionally." I said: "Have you had gonorrhœa or syphilis?" He said: "No." I said: "Have you been with a woman lately?" He said: "Yes, eight days ago." I said: "How long have you had the discharge?" He said: "On and off for twelve months, but it has been particularly bad twice in that period." I said: "Was it worse after intercourse?" He said: "Yes, it has been bad this last week, that is why I have come along to see you now; but there was no discharge this morning." I said: "Your

symptoms are very suggestive of an uncured gonorrhœa, but you say you have never had it. We shall give you an examination and see what we find." I examined his urethral smear, but there was nothing abnormal in that, so I expressed some prostatic fluid and stained it with methylene blue and examined it under the microscope. I found a condition in the smear; there were numerous cells and organisms, not quite so many pus cells as there were in Jones's case, but definitely more than there would be in a healthy prostate. I said: "You have evidence of infection here, but I cannot say what it is until we have done a culture. We had better urethroscope you right away." He then lay down on the couch and I urethroscoped him. He had numerous infected follicles. Dr. Homer walked into the room at the moment and I asked him to examine it for himself. He said: "Yes, it is very suggestive, isn't it, of chronic gonococcal infection?" The patient said: "Is it gonorrhœa?" I said: "I cannot say without further examination." I never told him I saw gonococci germs. I said: "There is something here that requires treatment; you had better have a blood test." He said: "I won't have that now, I will come again later." He then got dressed and came over to my desk and said: "I have led a pretty wild life, and I am thinking now of settling down and getting married. Am I infectious?" I said: "Well, in my opinion, you would be, but only by sexual intercourse, and even then you may not infect every woman you went with, but sooner or later, if you married, you would infect your wife in the same way. If you do not have treatment, of course, your condition will become worse and affect your general health, if it has not done so already." He then got up to leave, and I said: "My fee for this examination will be £3 3s." He said: "I only have £2 2s. now." I said: "You can pay that now and let the rest stand over; subsequent visits will only cost you £2 2s., but if you cannot afford that, I will meet you, or you could go to a public clinic." He said: "Are you sure I have gonorrhœa?" I said: "In my opinion you have an infection there which requires treatment, and there is no doubt about it in my mind, but you must have further investigation. Of course, since you say you have never had gonorrhœa, it is hard for me to pass an opinion, but, of course, it is recognized nowadays that men can have infection such as you have and yet they never had any previous urethral discharge."

Q.: It is admitted in this case that a second blood test revealed a weak positive reaction. With your history of the case and your diagnosis *plus* that blood test, what opinion would you come to as to whether or not that man had ever had gonorrhœa? *A.*: With a weak complement positive fixation test it would be perfectly consistent with my findings, and I should be inclined to say definitely that that man had had gonorrhœa.

The judgement of the Board was announced by the President on February 15. The President said:

> The Board finds that the first charge has not been proved to its satisfaction. The Board is not prepared to express the view that Dr. Storer's diagnosis in respect of each and all of the three persons who, in the information, are alleged to have consulted him, was correct. But the evidence clearly indicates that in each of the three cases there was a deliberate attempt to deceive him by a wilful misstatement of the symptoms and of the medical history, and in all the cases the misstatements were so misleading that the Board considers that they might have influenced his judgement and led him to give a diagnosis which the Board cannot, in the face of the evidence, believe was correct.
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> The Board does not find the second charge against him proved to its satisfaction.
>
> The third charge, that he did improperly seek to attract professional business by the publication and sale of a book called "Sex and Disease" and the sale of a certain preparation called "San-o-Sex" the Board finds proved, but, taking all the facts into consideration, the Board, while feeling that it is its duty to express its reprobation of the methods which he has employed, both in regard to the publication and sale of the book, and with the sale of the preparation in question, is not prepared to take extreme measures against him without further warning.
>
> The Board is influenced in this direction by certain undertakings which Dr. Storer personally, and through his counsel, put forward in the course of the hearing of the case.
>
> In order, therefore, to give Dr. Storer an opportunity to reconsider his position in relation to the methods referred to in the charge, the Board will defer judgement for a period of six months, when he will be given an opportunity to appear and satisfy the Board as to his conduct in the interval.

Correspondence.

TRAUMA AND ORGANIC VISCERAL DISEASE.

SIR: In the current issue of the journal (February 27, 1932) is a further letter from Dr. C. E. Corlette dealing with criticism of his papers on the above subject.

This letter fails to deal with either of the two important questions raised, but sets up a series of misrepresentations and partial quotations, apparently for the pleasure of hurling at them missiles of futile sarcasm.

This is not argument and leads nowhere. The first question raised was the relation of muscular exertion, especially involving the abdominal musculature, to peristalsis. Apparently in the case of rupture of gastric ulcer, dealt with in Dr. Corlette's original paper, in which he attempts to refute the decision of the Workers' Compensation Commission, medical witness gave evidence that it was conceivable that vigorous contraction of the abdominal musculature might start peristalsis and so lead to rupture of an ulcer. Similar evidence was also tendered in the case, in which I personally was interested, that peristalsis, so initiated, might contribute to the causation of internal hernia underneath a band of preexisting adhesion. This suggestion calls forth Dr. Corlette's ridicule, but neither in his first paper nor in his very interesting discussion of the application of physical laws to the abdomen as a closed cavity, is any evidence adduced to show its falsity. Dr. Fry's two letters point out the fallacies of Dr. Corlette's reasoning and disagree with his conclusions in the matter of rupture of gastric ulcer. Until some more convincing reasoning or definite evidence of research is advanced, these others are as fully entitled to their opinion as Dr. Corlette is to his.

The second and more important question raised was the part played by the contraction of the abdominal walls (including the diaphragm) in the course of strenuous effort in the causation of internal hernia.

This question has failed to receive any consideration from Dr. Corlette, although it was the most vital question in the particular case to which he chose to make glancing reference.

The part played by muscular effort in causing undue pressure on the abdominal contents and in producing external hernia is universally conceded. A reference to impulse on coughing as one of the signs of hernia is sufficient.

What part is played by similar effort in causing internal hernia?

Your correspondent, J.K.H., quotes three cases in his personal experience in which insurance companies accepted the relationship of strenuous effort to abdominal emergencies. The Commission in Dr. Corlette's case decided that the weight of evidence pointed to the bullocking effort of the navvy being sufficient to tear a gastric ulcer from its anchorage to the under-surface of the liver.

In the case in which I was interested, the effort involved was the lifting of a heavy sandstone block at a man's feet to a position above his shoulders or head. From a stooping position, when in all probability the abdominal walls were lax and even pendulous, there is the quite sudden alteration to the erect position with the abdominal

muscles and diaphragm rigid and the abdominal wall approaching the vertebral column as closely as it ever will.

Is the sudden readjustment of the abdominal contents and the sudden alteration of intraabdominal pressure sufficient cause to initiate an internal hernia? I still maintain that it is. The text books are somewhat reticent on this particular point, although implying that the discussion of causes of external hernia applies in measure to internal hernia.

In reply to Dr. Corlette I wish to add that I am not concerned with my own personal dignity, but I am vitally concerned with the honour and dignity of the profession.

That it was possible for a witness called as an expert to give evidence, not that it was unusual or improbable or unlikely for such strenuous effort to cause the abdominal emergency described, but impossible, filled me at the time with a sense of shame, and still does. Did Dr. Corlette concur *in toto* with the evidence of his colleague?

Yours, etc.,

F. S. Stuckey.

Mosman,
March 3, 1932.

TORSION OF THE UTERINE ADNEXA.

Sir: In the current issue of the journal (February 27, 1932) there is reference by Dr. Cecil Coghlan to a case of torsion of normal tube and ovary in a young virgin as being of extreme rarity. May this rarity not arise from simple failure to record cases rather than actual rarity?

I recollect a case on which I operated at Inverell for my colleague, Dr. R. M. Kinross.

The subject was in her eighteenth year, in the full flush of blossoming womanhood.

I remember the case principally because in deference to the opinion of my colleague that, although the area of acutest pain was in the left side, the probable cause of the abdominal pain was the appendix; my incision was made over McBurney's point. The appendix was obviously not the cause of the abdominal emergency. On further investigation, and with great difficulty, a purple swollen mass, consisting of a twisted left Fallopian tube and ovary, was delivered into the wound and removed. The number of turns of the twist and the direction of the twist, whether clockwise or anticlockwise, I do not remember. Macroscopically, the structures removed seemed to be quite normal, save for the congestion.

Recovery was quite uneventful; the right tube and ovary appeared to be quite healthy.

Although subsequently happily married, there have been no children so far as I know. Whether the absence of the left tube and ovary has contributed to this sterility I am not in a position to say.

Yours, etc.,

F. S. Stuckey.

Mosman,
March 3, 1932.

SELF-CONTAINED CARBON DIOXIDE ETHER MASK.

Sir: For some time I have been using a self-contained carbon dioxide ether mask, obtaining supply of gas from a small "Sparklet" bulb, which contains more than sufficient for average induction.

The perforating apparatus and gas passage is fixed to the mask and does not interfere with its use or render it heavy or cumbersome. The bulb is screwed in gently till a sufficient flow of gas is obtained. Induction is then started with ether.

Apart from the now generally appreciated advantages of this method of induction, this mask adds: (i) portability, one requires only the mask, packet of "Sparklet" bulbs and ether; (ii) ease with which carbon dioxide may be obtained in this form—"Sparklet" bulbs and spare parts for perforating apparatus can be obtained at any store; (iii) economy—small "Sparklet" bulbs cost 3s. 3d. per dozen, so that cost per induction is 3¼d., compared to 1s. 6d. or 2s. with ethyl chloride, which I previously used; (iv) the perforating apparatus and bulb holder form a convenient support for mask when patient's head is turned to the right during anæsthesia.

I showed my arrangement to Mr. Fenton, of Australian Oxygen and Industrial Gases, makers of "Austox" gas anæsthetic apparatus, who was impressed with its possibilities. His engineer has designed a very handsome mask embodying the above principles and also including an extra gas tube for oxygen administration.

Yours, etc.,

George Simpson.

14, Collins Street,
Melbourne,
March 4, 1932.

Obituary.

CHARLES DONALD RUSSELL.

We regret to announce the death of Dr. Charles Donald Russell, which occurred on March 2, 1932, at North Melbourne, Victoria.

WILLIAM JOHN MORTON.

We regret to announce the death of Dr. William John Morton, which occurred on March 8, 1932, at North Sydney, New South Wales.

Books Received.

HANDBOOK OF SANITARY LAW FOR THE USE OF CANDIDATES FOR PUBLIC HEALTH QUALIFICATIONS, by B. Burnett Ham, M.D., D.P.H.; Eleventh Edition; 1931. London: H. K. Lewis and Company, Limited. Foolscap 8vo., pp. 367. Price: 7s. 6d. net.

CONTEMPORARY SCHOOLS OF PSYCHOLOGY, by R. S. Woodworth, Ph.D., Sc.D.; 1931. London: Methuen and Company Limited. Crown 8vo., pp. 255. Price: 7s. 6d. net.

SPECIFIC CHANGES IN THE BLOOD SERUM, A CONTRIBUTION TO THE SEROLOGICAL DIAGNOSIS OF CANCER AND TUBERCULOSIS, by S. G. T. Bendien; translated by A. Piney, M.D.; 1931. London: William Heinemann (Medical Books) Limited. Royal 8vo., pp. 107, with illustrations. Price: 10s. 6d. net.

POCKET MONOGRAPHS ON PRACTICAL MEDICINE: DISEASES AND DISORDERS OF THE DIGESTIVE ORGANS, by A. Abrahams, O.B.E., M.D., F.R.C.P.; 1932. London: John Bale, Sons and Danielsson, Limited. Foolscap 8vo., pp. 110.

ULTRA-VIOLET THERAPY, A COMPILATION OF PAPERS FORMING A REVIEW OF THE SUBJECT, by Austin Furniss, L.R.C.P., L.R.C.S., L.D.S., D.P.H.; 1931. London: William Heinemann (Medical Books) Limited. Demy 8vo., pp. 377, with illustrations. Price: 12s. 6d. net.

DIPHTHERIA PAST AND PRESENT: ITS ÆTIOLOGY, DISTRIBUTION, TRANSMISSION AND PREVENTION, by J. Graham Forbes, M.D., F.R.C.P., D.P.H., with introduction by Sir Frederick Andrewes, M.D., F.R.S.; 1932. London: John Bale, Sons and Danielsson, Limited. Demy 8vo., pp. 852, with charts. Price: 45s. net.

A GUIDE TO BIRTH CONTROL LITERATURE: A SELECTED BIBLIOGRAPHY ON THE TECHNIQUE OF CONTRACEPTION AND ON THE SOCIAL ASPECTS OF BIRTH CONTROL, by N. E. Himes; 1931. London: Noel Douglas. Crown 8vo., pp. 46. Price: 3s. 6d. net.

THE BIOCHEMISTRY OF MUSCLE, by D. M. Needham, M.A., Ph.D.; 1932. London: Methuen and Company, Limited. Foolscap 8vo., pp. 174. Price: 5s. net.

HANDBOOK OF TROPICAL FEVERS, by N. P. Jewell, M.D., D.P.H., F.R.C.S.I., and W. H. Kauntze, M.D., D.P.H., with a foreword by A. T. Stanton, C.M.G., M.D., F.R.C.P.; 1932. London: Baillière Tindall and Cox. Demy 8vo., pp. 497, with illustrations. Price: 16s. net.

TEXTBOOK OF GYNÆCOLOGY, by Sidney Forsdike, M.D., B.S., F.R.C.S.; 1932. London: William Heinemann (Medical Books) Limited. Demy 8vo., pp. 302, with illustrations. Price: 15s. net.

NOTES ON CHILDREN'S NURSING, by M. E. Erxleben, R.N., B.S.; 1931. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 242, with 43 engravings.

TEXTBOOK OF GYNECOLOGY FOR NURSES, by P. J. Reel, M.D., F.A.C.S.; 1932. Philadelphia: F. A. Davis Company. Royal 8vo., pp. 282, with 81 engravings. Price: $2.50 net.

POCKET MONOGRAPHS ON PRACTICAL MEDICINE: RADIUM AND CANCER, by H. S. Souttar, C.B.E., M.D., M.Ch., F.R.C.S.; 1932. London: John Bale, Sons and Danielsson, Limited. Foolscap 8vo., pp. 64, with illustrations.

POCKET MONOGRAPHS ON PRACTICAL MEDICINE: THE ACUTE ABDOMEN, by C. H. Fagge, M.S., F.R.C.S.; 1932. London: John Bale, Sons and Danielsson, Limited. Foolscap 8vo., pp. 92.

HEALTH PROTECTION FOR THE PRESCHOOL CHILD: REPORT TO THE SECTION ON MEDICAL SERVICE (White House Conference on Child Health and Protection); 1931. New York: The Century Company. Royal 8vo., pp. 296, with charts.

THE MASTERY OF SEX THROUGH PSYCHOLOGY AND RELIGION, by L. D. Weatherhead, M.A., assisted by M. Greaves, M.R.C.S., L.R.C.P.; 1932. London: Student Christian Movement Press. Crown 8vo., pp. 286. Price: 5s. net.

CHEMICAL EMBRYOLOGY, by Joseph Needham, M.A., Ph.D., Volumes I, II, and III; 1931. Cambridge: The University Press. Royal 8vo., pp. 2021, with illustrations. Price: 5 guineas net.

ENGLISH-SPEAKING STUDENTS OF MEDICINE AT THE UNIVERSITY OF LEYDEN, by R. W. Innes Smith, M.D., with foreword by J. D. Comrie, M.D., F.R.C.P.; 1932. Edinburgh: Oliver and Boyd. Royal 8vo., pp. 280. Price: 16s. net.

Diary for the Month.

MAR. 23.—Victorian Branch, B.M.A.: Council.
MAR. 29.—New South Wales Branch, B.M.A.: Council (Quarterly).
MAR. 31.—South Australian Branch, B.M.A.: Branch.
MAR. 31.—New South Wales Branch, B.M.A.: Annual Meeting.
APR. 1.—Queensland Branch, B.M.A.: Branch.
APR. 5.—New South Wales Branch, B.M.A.: Council (Election of Officers and Standing Committees).
APR. 6.—Victorian Branch, B.M.A.: Branch.
APR. 7.—South Australian Branch, B.M.A.: Council.
APR. 8.—Queensland Branch, B.M.A.: Council.
APR. 12.—New South Wales Branch, B.M.A.: Ethics Committee.
APR. 14.—New South Wales Branch, B.M.A.: Clinical Meeting.
APR. 19.—New South Wales Branch B.M.A.: Executive and Finance Committee.

Medical Appointments.

Dr. W. R. Tonkin (B.M.A.) has been appointed Certifying Medical Practitioner at Coleraine, Victoria, pursuant to the provisions of the *Workers' Compensation Act*, 1928.

* * *

Dr. N. P. Breden, of Newcastle, New South Wales, and Dr. C. M. Marsden, of Melbourne, have been selected by the Director-General Medical Services for appointment to permanent commissions in the Royal Army Medical Corps. This completes the vacancies for Australian medical graduates for permanent commissions in the Royal Army Medical Corps for 1932.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi.

MATER CHILDREN'S HOSPITAL, BRISBANE, QUEENSLAND: House Physician, House Surgeon.

PERTH HOSPITAL, PERTH, WESTERN AUSTRALIA: Junior Resident Medical Officers.

ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, SYDNEY, NEW SOUTH WALES: Junior Pathologist.

THE PRODUCERS AND CITIZENS' CO-OPERATIVE ASSURANCE COMPANY, LIMITED, SYDNEY, NEW SOUTH WALES: Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Mines. Toowoomba Associated Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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